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A STUDY TO DEVELOP
A FUNCTIONAL USER'S MODEL
FOR THE REPLACEMENT OF PATIENT FURNISHINGS
ON NURSING WARDS
AT
WALTER REED ARMY MEDICAL CENTER

A GRADUATE MANAGEMENT PROJECT
SUBMITTED TO THE FACULTY OF
BAYLOR UNIVERSITY
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
MASTER OF HEALTH ADMINISTRATION
BY
MAJOR CHRISTIE A. SMITH, AN
21 JULY 1989

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This project analyzed the application of current systems already established within the AMEDD and applied at Walter Reed Army Medical Center for the purpose of acquiring and replacing capital equipment, particularly patient furniture. The deficiencies of the systems which prevent comprehensive periodic identification of much of the patient furniture as being in need of replacement include lack of staff understanding on their role in the process and failure of the AMEDDPAS and Property Book systems to include much of this furniture in the monitoring function. The project proposed a comprehensive, total quality assurance model that would correct these deficiencies, provide more accurate identification of the total financial requirement of the hospital and support enhanced funding of capital equipment programs.			
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HSHL-CS (HSHL-CS/29 June 1989) 1st End COL Johnson/cas/61393
SUBJECT: Graduate Management Project Submission

Chief of Staff, Headquarters, Walter Reed Army Medical Center,
Washington, DC 20307-5001 29 June 1989

For: Residency Committee, US Army-Baylor University Graduate
Program in Health Care Administration, Academy of Health
Sciences, Fort Sam Houston, Texas 78234-6100

1. The completed Graduate Management Project on the replacement of patient furnishings at Walter Reed has resulted in a new and innovative approach to total quality management of quality assurance activities within the Department of Nursing. The nursing staff is excited about the prospects of this new approach to capturing, assessing and resourcing furniture requirements. The study conclusions and recommendations are well thought out and supported. I find the recommendations fully acceptable for immediate implementation within the medical center.

2. I am most happy to recommend to you full acceptance of this quality research effort.

Encl

Donald A. Johnson

DONALD A. JOHNSON
COL, MS
Chief of Staff



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REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C. 20307-5001



HSHL-CS

29 June 1989

MEMORANDUM THRU: Chief of Staff, Walter Reed Army Medical
Center, Washington, DC 20307-5001

FOR: Residency Committee, U.S. Army-Baylor University Graduate
Program in Health Care Administration (HSHA-IHC), Academy of
Health Sciences, U.S. Army, Fort Sam Houston, Texas 78234-6100

SUBJECT: Submission of Graduate Management Project

1. In accordance with the instructions contained in the Administrative Residency Manual, the graduate management project is submitted from Major Christie A. Smith, Administrative Resident, Walter Reed Army Medical Center, Washington, DC.
2. I receive great satisfaction with the completion of this project for many reasons. I have become very conversant with the systems in place for equipment management and the options currently available to AMEDD managers to get the most benefit from these systems. The model which I have designed is a practical one that can be easily integrated into the revised Quality Assurance Program within the Department of Nursing. The greatest sense of satisfaction comes from the potential this model has for universal application to all types of equipment and all the departments and directorates at WRAMC.
3. Following completion of the Administrative Residency I will stay at Walter Reed for a short period of time while I await the results of the selection board for the Management Fellowship position in the office of the Chief, Army Nurse Corps. Any changes in mailing address and telephone numbers for that transition period will be forwarded with the Fourth Quarter Report.

6 Encls

Christie A. Smith

CHRISTIE A. SMITH
MAJ, AN
Administrative Resident

"REPRODUCED AT GOVERNMENT EXPENSE"

ACKNOWLEDGEMENTS

This project was completed only through the support and cooperation of many people within the Directorates of Logistics, Resources Management, Medical Activities Administration and the Department of Nursing. A special note of appreciation is extended to Lieutenant Colonel Stuart A. Mervis, MS and Major Joseph D. Wanersdorfer, MS for their interest in the project and generosity with their time. LTC Tommy W. Mayes, MS, through his editing skills and encouragement, greatly helped keep this project on focus. Lastly, but most steadfastly, Colonel Donald A. Johnson, through his patience, insight and mentorship, guided this author through the discovery of the complexities of capital equipment management.

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CHAPTER I INTRODUCTION

Conditions Which Prompted the Study

The Walter Reed Army Medical Center (WRAMC) hospital building is now twelve years old. A review of the committee minutes from some hospital committee meetings over the past few years (Stingle, 1987; Johnson, D. 24 June 1987, 25 Nov 1986) as well as a walk through the hospital highlight the aged condition of much of the medical and nonmedical furniture in the hospital. The need to replace and upgrade this furniture is evident, and a systematic, long range plan for scheduled replacement and upgrade of large quantities of furniture and nonmedical equipment is preferred. Such a plan is important when considering that large numbers of equipment and furnishings are reaching the end of their service life simultaneously, that functional hospital equipment is essential for safe, quality and cost-effective patient care, and that high dollar expenses, if they are to be met, must be programmed for in the facility budget. The need for such a plan is particularly important since furniture items and nonmedical equipment are not as visibly critical to the hospital mission as are major medical equipment items. The plan would be an adjunct tool for the resource manager, clinicians and administrators in their management of increasingly constrained budget dollars.

The transience of the military community in general, the specificity of the military budgeting process, the dynamic but increasingly constrained Department of Defense financial environment and the lead time required for planning and budgeting all jeopardize the continuity of the acquisition planning process and specifically pose a threat to timely furniture replacement. The significance of these concepts is magnified particularly in a facility the size of Walter Reed Army Medical Center whose size and scope of

operation surpass the limits of other facilities whose operations fit well within the standardized processes and programs outlined in federal regulations for equipping and maintaining (medical) facilities. These factors plus the poor condition of the patient, staff and public areas have been driving forces to bring the Command Group's attention to the need for some ongoing system that would facilitate Walter Reed's capability to maintain itself as the premier Army medical facility that it is, and to do it in an economically realistic manner. In support of these interests and at the request of the Chief of Staff, this project was undertaken.

As functional users are generally responsible for initiation and justification of equipment requests, any model for replacement planning would be used by these functional users, many of whom may be new to their jobs or the requirement and may not have the experiential background to support an effective and efficient replacement process.

Problem Statement

The purpose of this project is to develop a functional user's model for the replacement and/or upgrade of patient furnishings on nursing wards at Walter Reed Army Medical Center.

Objectives

1. Conduct a literature review addressing the systems applied to furniture acquisition in a healthcare setting, capital equipment financing and the methods used for identifying financial and equipment needs.
2. Identify the systems in place which contribute to patient furniture (equipment) management.
3. Evaluate the effectiveness of the systems used in patient furniture management.

4. Design a model for the application of a furniture management program, initiated at the ward level, which will be comprehensive and continuous.

5. Make recommendations for the implementation of the model.

Criterion

The plan will be accepted by the Chief of Staff for implementation as a primary model for use in furnishing replacement within the Medical Center.

Assumptions

1. The existing funding programs used to resource WRAMC will not change;

2. The present funding programs do not explicitly provide guidelines for major replacement of furnishings for hospitals;

3. The Capital Equipment Expense Program (CEEP) is inadequate to address mid and long term replacement and upgrade of furnishings on WRAMC nursing wards;

4. The availability of opportunity dollars at year's end to purchase medical and nonmedical equipment will likely decrease in the future;

5. Equipment management issues are synonymous with patient furniture issues.

Limitations

Plan development will focus only on patient furniture (e.g. beds, bedside stands, over-the-bed tables, etc.) for nursing wards.

Literature Review

The proposal to develop a model in support of replacement of patient furniture at WRAMC has been met with mixed enthusiasm. No one debates the need for furniture replacement, but rather, the need for a model of replacement since a system for capital equipment acquisition in the Army already exists. That capital equipment acquisition system uses the Army Medical Department Property Accounting System (AMEDDPAS) to identify replacement candidates, to caution users to anticipate obsolescence, and to program for modernization. The system identifies specific sources of funds (e.g. MEDCASE, CEEP) as the means by which users are expected to develop and maintain the technical environment. (Johnson, D. 24 Jun 1987, Higgins 1987, Smullen 1987, Shellie 1988) One could argue that the furniture requirements at WRAMC are the result of the established systems not having been used appropriately. The fact that WRAMC does have widespread deficiencies and does need focused attention on the furniture replacement process is sufficient indication that some remedy to current system use (e.g. a model) is needed. Beyond WRAMC, however, other evidence exists which suggests that facility modernization and replacement needs (of which furniture is just one component) are of as great a concern to the smaller MEDDACs, as they are to Walter Reed. The Health Services Command 1988 Strategic Plan specifically charges the Deputy Chief of Staff for Logistics to 'evaluate facility modernization and replacement needs, and communicate HSC priorities to OTSG.' (36) Discussion with nurse methods analysts from other Army hospitals confirm the need for added focus on furniture; within the capital equipment system, furniture items do not have the competitive power for funding that medical equipment and supplies have.

The result has been that other hospitals, too, have badly run-down patient furniture. (Nurse Methods Analyst Course, August, 1988.)

Hospital commanders and deputy commanders for administration also recognize the need for a change in the capital equipment and facilities improvement system. Recently, at the 73rd Interagency Institute for Federal Health Care Executives, small groups of the participants were asked to identify major problems that are confronting them in their assignments. (The group members represented the military services, the Public Health Service and the Veterans Administration and a variety of specialists from these agencies such as physicians, nurses, administrators and occupational therapists). One group in particular specifically identified the need to have an improved system that would be more responsive to the deteriorating facilities. (Strobel September 1988)

The term capital equipment refers to durable equipment whose use covers more than one accounting period and is of significant investment worth. Hospital furnishings fit this definition (Neumann 351, George 30). For accounting, purchasing and design purposes, furniture may be defined further as major moveable (i.e. Group II) which is capable of being moved but is generally in one location, and has a life expectancy greater than five years. (Johnson, M. 218, Junikiewicz 5)

Authors strongly affirm the role of the governing body and upper levels of management in defining the institutions' scope of capital investment (Berman, et al. 113, Manevich 4, Hanson 97) and that these decisions are intimately linked with the long term plans for institution survival, development, and growth. Once institutional leaders have decided what they want to do, they then look to how they are going to do it. Whatever the plans

are, they must be conscious of the need to meet the institution's total financial requirements. Total financial requirements reflect more than just the accounting costs which cover current operating needs. Meeting total financial requirements ensures that other needs to maintain the institution in the business world are met. Total financial requirements include physical plant maintenance, renovation and replacement, as well as education and research. The American Hospital Association has endorsed the requirements of hospitals to analyze and plan for its total financial requirements, first in 1969 policy and then by revisions of the policy in 1977 and 1979. (Berman, et al. 107-114) Accordingly, it is through the capital budgeting process that investment proposals are identified, evaluated and audited. (Neumann 351)

Evaluation of proposals for investments are composed of qualitative and quantitative elements in conjunction with organizational mission and goals. (Neumann 351-353) These evaluations include cost-benefit analyses of which the power of the qualitative and quantitative elements are dependent upon the present financial health of the institution and its future goals. In the past, random capital investment was endorsed through generous philanthropy and the evolution of laws supportive of healthcare financing (e.g. the Hill-Burton laws, tax-exempt revenue bonds, Federal Housing Administration (FHA) insurance for hospital mortgage loans, Medicare pass-through of hospital costs). (Gray 4-6, Oszustowicz and Dreachslin 9-13) With interest rates increasing, legislative attempts to control the ever-increasing use of tax-exempt bonds and the initiation of the DRG system of prospective payment, the impetus was provided for hospitals to look for new sources of investment capital. Variations of short-term financing with favorable interest rates have since become popular. More bond insurance programs, too, have come into existence

despite critical scrutiny of the FHA and tax-exempt programs. Hospitals have become more competitive in order to survive and to qualify for the lower premiums and insurance these programs provide. (Gray 8) Overall, financing opportunities have actually increased, but the proprietary institutions that are already in good financial position have better access to these innovations. For the nonprofit sector, the traditional sources of capital resourcing still lie in philanthropy and retained earnings. (Gray 8) Innovations available here favor corporate restructuring to create for-profit affiliations that can earn equity capital that is then available for investment in the nonprofit hospital. With fewer external options available to them, non-profit hospitals rely more heavily on internal methods to generate capital funds. Such methods may include down-sizing, departmental reorganization for increased efficiency (e.g. automation, auditing business accounts and operations such as supply and distribution) and astute budgeting which includes funded depreciation. (Berman, et al. 49,54) Given the most unfavorable situation, capital is guarded to the extent that investment in equipment replacement and/or upgrade is delayed. (Harris & Pitts 1989, Alder 1989, Willis 1989) In light of the changes in the financing environment, it is no wonder that hospitals are scrutinizing their capital investment programs for maximum profitability. It is little wonder that, when competing against a program that will bring revenue into the system (e.g. investing in a lithotripter), the benefits of investing in patient furniture are not seen so readily.

From a nontechnical perspective, it is important for hospitals to consider the value of the asset that the physical plant represents. Evolution of healthcare has brought with it great expectations from patients and healthcare providers, not only in terms of technical accomplishments, but also of the environment in which they are conducted. A well-designed and maintained facility conveys caring and attention to detail (Theerman, et al. 33, Kimball 1354) not only to the patients, but also to the staff who serve them (Monserud 68,69; Burgun 52,53) and is a factor in control of burnout and employee attrition. (Klein 5, Health Technology Mar-APR 1987 50, Biskey 1988)

Identification of equipment needs is not limited to the upper management. Over the years CEO's have become less involved in the identification and purchasing process, the decisions being made more by department heads. (Harju 70, Kubal 45-46) Support is also given for direct healthcare providers to be identification sources of equipment needs - these individuals having working knowledge of current needs and potential applications of new equipment and technology. (Walsh 318-320, HSC Capital Equipment Program 1987 3-1)

Much has been written about ways to approach the identification of equipment needs. The approaches use generic concepts - that one must have the right person(s) looking for the right things, having been provided the right information about what really is wanted (Lackman Part 3), to time sequencing each event (Martin & Trumbly 6-9, Lackman Part 1, Health Facilities Project Officer's Management Guide 101-109), to specifically outlining the steps to be taken. (Walsh 318-320, Gustine and Young 20,21, Enger et al. 350,356, Johnson,M. 214,220) All authors emphasize the importance of effective communications throughout the process.

Resources which today's health care systems have at their disposal (e.g. money and manpower) are becoming more scarce each year. Potential for budget growth at Walter Reed which would support capital investment and new construction renovation plans is stunted not only as a result of decreasing workload which generates the base of the budget, but also as a result of zero DOD budget growth as imposed by the current administration. (Wilson, 1989, A3). The requirements that must be satisfied with these resources (e.g. state-of-the-art practice, standard of care technology, competitive salaries for personnel, training programs), however, continue to multiply exponentially. These two conditions, then (decreasing workload and zero budget growth), are focusing this research project in its goal to identify planning and budgeting strategies to support furniture replacement programs at Walter Reed.

Methodology

The objectives of this project were accomplished by review of applicable WRAMC and HSC regulatory documents which define the current system structures for acquisition and replacement of capital equipment. Other documents that were examined included organization mission and goal statements, job descriptions and program budget guidance. Interviews with personnel in the Directorates of Logistics and Resources Management particularly were conducted to determine how the regulatory guidelines are applied at Walter Reed and how satisfactory they are to meet Walter Reed's needs. Interviews were also conducted with key personnel in the Department of Nursing and Directorate of Medical Activities Administration to determine what processes are employed to meet ward and department equipment needs and the degree of satisfaction that is achieved.

A survey was conducted among staff and administrators on two wards to attempt to objectify the knowledge base of staff for use of the established system, to be able to identify staff perceptions about the effectiveness of the system, track communications among key people who operate the system and to identify what factors may have contributed to the neglect of patient furniture replacement. Determination of absolute numbers of furniture items to which a cost could be fixed for budgeting consideration was also intended from the survey.

Committee meetings, task force and special visitor meetings were attended and minutes of meetings were reviewed which were pertinent to furniture replacement. Interviews in person and by phone were conducted with outside professionals in the hospital and hospitality industries to determine if there is a commonality of WRAMC's problem with theirs and to discuss solutions to problems that may be applicable at WRAMC.

Finally, seminars were attended and books and articles read that helped define a network of activities that would contribute to increased effectiveness of capital equipment acquisition systems at WRAMC.

ENDNOTES

- Alder, Henry. 'Facilities News.' Health Facilities Management . Apr. 1989:6.
- Burgun, J. Armand. 'The Use of Design: I. Controlling costs and Maintaining Quality.' World Hospitals. 21 Nov. 1985. 52-55.
- Berman, Howard J., Lewis E. Weeks, and Steven F. Kukla, The Financial Management of Hospitals. Health Administration Press. Ann Arbor. 1986.
- Carver, Donald C. Planning for Hospital Expansion and Remodeling. Springfield: Chas. C. Thomas. 1968.
- Biskey, LTC. Valerie. Personal Interview. Walter Reed Army Medical Center. Washington. 30 Nov. 1988.
- Department of the Army Office of the Surgeon General Health Facility Planning Agency Project Management Branch. Health Facility Project Officer Management Guide. OCT. 1976. Washington, D. C.
- Enger, Elaine L., Jill Mason and Karyn Holm. 'The Product Evaluation Process: Making an Objective Decision.' Dimensions of Critical Care Medicine. 6 (1987): 350-356.
- George, Harvey W. 'Integrating Capital Equipment Management.' Journal of Healthcare Materiel Management Nov.-Dec. 1987. 30-34.
- Gray, William J. 'Capital Financing Techniques for Health Care Facilities: A Historical Overview.' Health Care Strategic Management. Mar. 1984: 4-8.
- Gustine, Susan M. and Phillip Young, 'How to Evaluate and Compare Maintenance Contracts: A Checklist.' Hospital Materials Management. Jul, 1986:20-21.
- Hanson, Ellis G. 'Preconstruction Planning: a frame for development.' Hospitals. 1 Nov. 1984. 97-98.
- Harju, Mark. 'Who's responsible for hospital equipment and product purchasing decisions?' Hospitals. 1 Jul. 1984:70-71.
- Harris, Jay and Keith Pitts. 'Capital Management helps Hospitals face hard times.' Healthcare Financial Management. Mar. 1989: 21-34.
- Higgins, CPT Stephanie. Minutes. WRAMC Furniture Committee. 13 Apr. 1987.
- Johnson, COL Donald A. Minutes. WRAMC Furniture Committee Meeting. 25 Nov. 1986.
- . Minutes. WRAMC Furniture Committee. 22 Apr. 1987.
- . Minutes. WRAMC Furniture Committee . 24 Jun. 1987.

Johnson, Mariann L. "Equipment Planning Process. Organizing Purchases." AORN Journal, 47 (1988):214-220.

Junikiewicz, James J. "Involved in a Construction Project? These Suggestions May Help." Hospital Materials Management Apr. 1986. 3-7.

Kimball, Elizabeth. "Interior Design as healing agent." Canadian Medical Association Journal. 15 May 1984:1364-1372.

Klein, COL Thomas. "Pay Cited as Factor in Keeping Physicians." by John E. Burick. Stripe. 31 Mar. 1989: 5.

Kubal, Joseph D. "Department Heads exert more buying influence." Health Facilities Management. Sep. 1988. 42,44,45.

Lackman, Michael. "Controlling the Project Development Cycle. Part 1 - Guidelines for a Project Manager." Journal of Systems Management. Feb. 1987.

Lackman, Michael . "Controlling the Project Development Cycle. Part 3 - Tools for Successful Project Management." Journal of Systems Management. Feb. 1987.

Manevich, Martha Bill. "Facility Planning as a Component of Strategic Planning." Health Care Strategic Management. Feb. 1985. 4-7.

Martin, Dr. Merle P. and James E. Trumbly. "A Project Accountability Chart (PAC)." Journal of Systems Management. Mar. 1987. 6-9.

Monserud, Susan D., "Programme planning and facility design." World Hospitals. Nov. 1985:69-70.

Neumann, Bruce R., James D. Suver, and William N. Zolman. Financial Management: Concepts and Applications for Health Care Providers. National Health Publishing. Owings Mills. 1984.

Nurse Methods Analyst Course. Group Discussions. AUG.15-19, 1988. Crystal City, VA.

Oszustowicz, Richard J., and Janice L. Dreachslin. "Capital Financing in Prospective Payment." Health Care Strategic Management. Mar. 1984: 9-13.

_____. "Replacing Unsafe or Aging Equipment. The Impact of Tight Capital Funds on Acquiring Equipment that is Needed for High Quality Care." Health Technology. Mar. - Apr. 1987. 46-53.

Shellie, MSG. Carnell. Minutes. WRAMC Furniture Committee. 22 Jan. 1988.

Smullen, LTC. Melvin G. Minutes. WRAMC Furniture Committee. 22 Oct. 1987.

Stingle, LTC. Norbert. Minutes. WRAMC Furniture Committee. 22 Oct. 1987.

Strobel, LTC Fred. Interagency Institute for Federal Health Care Executives.
Group Discussions. 13 SEP 1988. Washington, D.C.

Theerman, Barbara White, Judy A. Drewes, and Vicki Vollmer. 'Important
Considerations in Interior Design.' Contemporary LTC. May, 1986: 33-34.

United States of America. Department of the Army Health Services Command.
'Automated Data Systems Manual AMEDDPAS USERS MANUAL.' Ft. Sam Houston,
Texas. 1 Oct. 1984.

United States of America. Department of the Army Health Services Command.
'Capital Equipment Programs.' Ft. Sam Houston, Texas. 10 June 1987.

United States of America. Department of the Army Health Services Command.
'1988 Strategic Plan.' Ft. Sam Houston, Texas. May: 1988.

Walsh, Valerie. 'When wishing won't make it so.' American Journal of Nursing.
Mar. 198 : 318-320.

Willis, Grant. 'Veterans left confused, bitter by VA hospital cuts.' Army
Times. 12 Jun. 1989. 20.

Wilson, George C. 'Tower involved in Pentagon Planning. Aides say nominee
working on budget cuts, strategic assessments.' The Washington Post. 1
March 1989. A3.

CHAPTER II DISCUSSION

The Patient Furniture Management System

Investigation into how (patient) furniture is acquired in the public and private service industries, of which WRAMC is a member, reveals that there are many ways that information may be collected which identifies the specific needs and solutions to meet those needs. Review of these systems and particularly that of WRAMC, permit the categorization of the system elements that play major roles in the final outcome of furniture acquisition into system structure, process, people and resourcing. Evaluation of the scope of the system that each of these components covers and the effectiveness of the interaction each component has among each other permits focus on problem areas that impede the desired level of acquisition of patient furniture.

A STRUCTURAL OVERVIEW

Corporation equipment can be categorized in a multitude of ways. The equipment may be planned for also in a multitude of ways. Group I equipment - fixed equipment, is permanently attached to the building. It has a general life expectancy of around ten years, and includes such hospital items as medical gas systems, sterilizers and surgical lights. Group II equipment is major moveable equipment that has a life expectancy of about five years. Although it is moveable, it has a relatively stationary location, e.g. beds, lab equipment, surgical tables. Group III equipment is minor moveable equipment with a life expectancy of three to five years or less and costs less per unit than either Group II or Group I items. (Johnson,M. 1988, Junikiewiz 1986)

From a financier's perspective, particularly in today's environment of increasingly constrained resources, Group I and II equipment, which include patient furniture, can be thought of as capital equipment. The resources required to purchase these items reflect a long term investment and inherently specific planning strategies to ensure that the investment in the equipment meets the hospital's needs, short term and long term. (Carver 51) The size of the investment is necessarily dependent upon the size of the facility. The manner in which the investment is funded will depend upon these two elements (hospital needs and size) plus the type of organization supporting the facility (e.g. public, private, not for profit, for profit). For example, a local, non profit, teaching hospital/medical center limits its capital equipment program to \$100,000.00/ year. This budget is funded from the profits of the faculty group practice. The institution administration directors, however, have the power to make significant investment decisions which will affect all three groups of equipment categories. (Chaufournier 1988) In another service system (nonhospital, multi-institution), the institution is expected to 'make do' from local profits and request investment support from the owner group that is headquartered out of the local area. If the request for owner support has been anticipated, investment support may be provided directly from the parent group, or indirectly by a series of financial measures that may include allocating a per cent of gross revenue, allocating cash available at year end, or borrowing money in accordance with that year's capital plan. (Margoleus 1989, Murphy 1989)

Within the federal sector, certain programs for capital investment support the purchase of certain categories of equipment, these programs being funded from specific sources of monies. These programs are well defined and

are separated according to their relationship to construction and nonconstruction projects. (VanHook 1988) Within the Army Medical Department, the Medical Care Support Equipment Program (MEDCASE) has been established to ensure effective capital equipment support for patient care and related functions. (Walter Reed Reg 40-610 1983) The program is designed to plan, program and budget for medical and non-medical capital equipment assets. In support of construction projects, the MEDCASE program encompasses the acquisition of capital expense equipment (>\$1000.00) and minor non-expendable equipment. (Medcase User's Manual 1984) In support of nonconstruction projects, the MEDCASE program presently provides for funding of those items with a unit cost of \$5000.00 or greater. The threshold for MEDCASE funding has changed and is expected to change again: the old threshold was \$3000.00 and is expected to be raised to \$15,000.00. The MEDCASE program is funded centrally by the Department of the Army with OPA (Other Procurement Army) funds.

Also a part of the capital expense program, the Capital Expense Equipment Program (CEEP) funds that equipment with a unit cost of \$1,000.00-\$4,999.99. The CEEP program, too, has experienced change in its threshold level, the earlier dollar limit having been \$2,999.99 and the expected dollar limit soon to be \$14,999.99. This program is funded locally with OMA (Operation and Maintenance Army) funds which are the primary fund source for facilities' operating budgets. The accounting designation for the CEEP funds in the Command Operating Budget is element of resource (EOR) 3100. Those items of equipment less than \$1,000.00 are purchased out of the activity EOR 2300 funds, the supplies account.

The described changes in the MEDCASE and CEEP program thresholds present serious considerations for all managers at the medical treatment

facilities. These changes shift the burden of financing capital equipment more heavily onto the facilities, themselves. Locally funded equipment purchases are now more dependent upon operational efficiencies of the facility and approved increases in the CEEP account.

Since Walter Reed is an installation command, not just a medical facility, capital equipment might possibly be acquired by way of reprogramming funds from the engineer base maintenance and repair (BMAR) account. The likelihood of being able to reprogram these funds is rare, however, because of the equally expensive and resource-limited nature of the base maintenance programs.

Although the capital expense program is defined primarily in terms of resourcing programs, the AMEDDPAS system is an operational element of the program that is essential to effective management of equipment. The integration of this system into the financial aspects of planning for equipment ensures more efficient use of resources.

AMEDDPAS

The Army Medical Department Property Accounting System (AMEDDPAS) is an automated system that is an integral component of property management. The system is a property book which identifies property (e.g. furnishings) by a management control number, hand receipt holder, and documents scheduled and unscheduled maintenance, purchase price and life expectancy. (AMEDDPAS Users' Manual 1984) Through the various reports that are generated, equipment serviceability is monitored. Frequency and costs of repairs are important complementary reports that, when analyzed in conjunction with the life

expectancy information, give a more accurate account of an item's need for replacement than would be available by these reports separately.

The AMEDDPAS system is a great asset to equipment managers. At least once a year, the system provides for the generation of the Equipment Replacement Report. This report shows those items that are projected to reach the end of their useful life within the fiscal year. These 'estimated useful life' (Appendix B) dates are projected from the equipment's 'date-put-into-service'. The Equipment Replacement Reports are produced primarily for the hand receipt holder (HRH). In conjunction with the Equipment Replacement Report, the AMEDDPAS system produces a report of the expenditures for repairs for a piece of equipment. It must be, and is emphasized, that the estimated useful life information in its own right does not substantiate replacement of a piece of equipment. In fact, a piece of equipment may have exceeded its record of useful life, yet have required only routine maintenance and very adequately met its support mission. Under these circumstances, this equipment would not necessarily be a candidate for replacement. Conversely, a piece of equipment may be no where near the end of estimated useful life, yet have surpassed its limit of maintenance expenditures or practicable useability because of advances in technology. In this case, serious consideration to its replacement would be made.

Although the AMEDDPAS system is a great aid to equipment managers, it is not wholly satisfactory in meeting the needs that the equipment managers have for identifying equipment for replacement and/or new acquisition. Certain pieces of equipment are on the Property Book whose serviceability determination under AMEDDPAS is inaccurate because they have no periodic maintenance requirement. These items, therefore, do not come under regularly

scheduled scrutiny from the maintenance perspective. Certain other items are 'group managed' ('X' items) and are placed in the facility without specific hand receipt designation. Placement of items into the 'group-managed' category may be because of a need for management convenience. Items that are so managed are moved frequently and over a wide area so that HRH accountability is jeopardized. Examples of these group managed equipment items include wheelchairs, bedside stands, overbed tables, IV poles and beds. The policies related to what is group managed at Walter Reed are particularly important. The size of the Property Book demonstrates this need in conjunction with the numbers of regular and special inventories that must be conducted. Not looking at individual items (e.g. >1200 beds), the Property Book deals with 347 hand receipts, 7 hand receipt managers, and represents a collateral value > \$96 million. (Mervis 30 AUG 1988)

Not all other durable equipment items are entered into the property accounting system, either. Recent changes in the thresholds for durable equipment to be entered into the accounting system, exclusive of maintenance requirements, call for those nonmedical furniture items <\$300.00 and medical furniture items <\$1000.00 not to be accounted for in the property book. (Mervis 2 June 89) In addition to the 'X' items, and the durables that have no maintenance requirement and cost a certain amount, the AMEDDPAS system does not flag the need for replacement/acquisition based on technology advancement or changes in mission. For these reasons, the potential for inadvertent neglect of equipment issues is great and active hand receipt holder and functional user participation in the equipment acquisition and management process is vital to a successful equipment management program.

The HRH is presumed to be someone who is on the 'front lines' of the activity, one who has intensive contact with the users of the equipment, and who has specific knowledge of how and when and to what extent the equipment is used. By being in such a position, the hand receipt holder is able to assess the adequacy of equipment usage and to know whether the technology presented by the equipment also meets the activity's needs adequately. If the analysis of the equipment usage according to these criteria is unfavorable, it is expected that the HRH will initiate a request for new equipment. Although not perfect, it is evident that a basic system that addresses management of equipment has been provided by the AMEDD. In order for this structure to be most effective, however, certain people must play key roles within its operation.

THE PEOPLE

The development of an effective equipment requirements list must be by way of a process that is organization-specific, that is, reflects the organization's philosophy and resourcing opportunities. Even when clearly defined, corporate policies, procedures and objectives have their limits in meeting the institution's equipment needs. Analysis of how organizations in the service industry go about replacing, upgrading or initiating equipment acquisition indicates that it may be done 'successfully' in an entire range of ways reflecting decision-maker spontaneity to well-defined and programmed vigilance at many levels within the organization. (Chaufournier 1988, Murphy 1989, Becich 1988, Straughn 1989) For each way of developing an equipment requirement, there are a number of people involved who are held accountable

for certain steps in the process and who are instrumental to the success of the process.

Within the AMEDD, the policies and procedures already mentioned specify several individuals who are key to formulating the requirements list (HSC Circ 700-1). The hand receipt holder (HRH) is the person who assumes documented responsibility for the equipment and who is responsible for its security, maintenance and for requesting replacement. It is the HRH who receives the AMEDDPAS reports that initiate the 5 Year Equipment Replacement Report, and the one who is expected to have thorough knowledge of the equipment and its usefulness. The organization's MEDCASE/CEEP manager is the logistician who is responsible to prepare the reports for HSO/MACOM which reflect the equipment requirements and ensure that they and supporting paper work are submitted accurately and on time. The local commander approves and prioritizes the high dollar value equipment requests prior to their submission to HSO/MACOM. The number of individuals who actually are involved in this process is much greater than this brief list and includes all levels of users of the equipment. Many of the documents consulted in this study, in fact, encourage active solicitation of input from a wide variety of personnel whose knowledge and use of equipment will increase the accuracy of the data related to its serviceability from the maintenance and 'state-of-the-art' perspective.

The Walter Reed organization specifically calls for the involvement of many people when planning for equipment. Although this study particularly looks at nursing units, there are analogous positions within other clinical and administrative departments that play a significant role in their department's equipment management. It is also noted that Walter Reed, because of its size and organizational structure, has a number of positions that

figure in this process, have overlapping responsibilities pertaining to equipment procurement, and do not exist in other MTFs.

As specified in the methodology description for this study, a review of unit or position-specific job descriptions for the people who interact with the specific wards surveyed was conducted. This review provided some clear guidance about individual responsibilities. Within the Department of Nursing (DON) unit level job descriptions on the wards surveyed, however, were not consistent in definition of responsibilities, and were not current for the present organizational structure of the department. Only general job guidance was provided in the Department of Nursing Administrative Policies and Procedures Manual. As a result, using these documents as a guide for performance confuses the specifics of roles and responsibilities. Note is made, however, that work is being done within the department to rewrite all job descriptions. Upon completion of this task, the revisions will be filed in the Department of Nursing Administrative Policies and Procedures Manual. Within the administrative support structure of the Directorate of Medical Activities Administration (DMAA) job descriptions used in performance evaluation were the source of information, as well as interviews with various individuals in these positions.

The wardmaster (unit WOOIO) is expected to identify, among other problems, logistical problems, and bring them to the attention of the unit administrators. The wardmaster thus ensures that all equipment is serviceable. The logistics technician (log tech) is expected to provide supply and maintenance request books for clinical personnel, order supplies and equipment when directed to do so by the head nurse, wardmaster or unit administrator. The log tech is also expected to inform these people when the item will arrive

and what, if any, delays to expect. All purchase requests are to be initialed by the unit administrator prior to submission, and the log tech ensures that this is done. The log tech maintains a work order log, keeps the log status current, and is expected to make preventive maintenance rounds with the wardmaster weekly. The head nurse ensures that daily operational checks are performed on equipment, 'oversees' preventive maintenance on equipment, supervises equipment turn-in for repairs and plans for replacement of equipment which is 'mission essential'. It is further expected that the head nurse will ensure that the log tech calls in repairs on equipment, and will coordinate with the log tech for daily transfers of equipment. The Head Nurse is generally involved in equipment management by being the leader and manager that plans, directs, staffs, coordinates and evaluates the unit. These activities are not limited to the clinical aspects of unit management.

On the administrative side of equipment planning, are the Unit Administrator, Floor Administrator, Floor ECOIC, Log Assistance Officer, and Nurse Methods Analyst. The Unit Administrator (UA/ Assistant Administrator) is responsible for the Capital Equipment Program with emphasis on the MEDCASE Program. This administrator is expected to consult with the professional staff, develop annual and long range capital equipment needs, maintain cognizance of the latest equipment technology in the field, and explore with the professional staff the propriety of procuring new equipment. This administrator provides the detailed justification to support equipment requirements. The Associate Administrators (Floor Administrators), in conjunction with the unit administrators, plan, research and provide technical assistance and support to the clinical staff on MEDCASE and CEEP submissions. Continuous monitoring and liaison is required with service chiefs

and the Directorate of Logistics on these major equipment procurement actions. The Floor NCOIC provides more of the technical support to the process, receiving initial purchase requests, MEDCASE and CEEP forms from the UA, and ensuring that the forms are all in order before they are sent to the MEDCASE/CEEP manager. As a final check before sending the forms to the MEDCASE/CEEP manager, the equipment requests may be reviewed by the Logistics Assistance Officer (LAO) to ensure that all purchase requests are completely and adequately filled out. As a final link in the communication process, the LAO is expected to have monthly logistics management meetings for each major area supported and include the UA, NCOIC/OIC, log tech and floor administrators, as required, in the meeting. As additional contributors to the equipment planning process, the Nurse Methods Analyst (NMA) may play a role by serving as consultant to the Comptroller and Chief, Department of Nursing on nursing-related matters. Such matters include identification of equipment deficiencies, evaluation of equipment, facilities planning, nursing methods and trend analysis, all in conjunction with support of present systems. Also, in so far as equipment incorporation into the hospital may impact on the facility design, operational efficiency and traffic flow, the Interior Designer is consulted to ensure continuity of and/or coordination of design theme. Finally, as the specifics of equipment need are identified (through cooperative effort of the users, the NMA and the interior designer), the Contracting Office will become involved to process the purchase/delivery agreement.

Interviews with the floor administrators, some unit administrators and nursing personnel indicate that both the clinical and administrative staff do not all function within the scope of their job descriptions: some staff

exceeded the scope, in some cases the staff did not meet the scope. Clinical and administrative staff also expressed specific expectations they had of their counterparts. Some of these expectations were met, some were not. Interviews and survey results reported that both the administrators and clinicians lacked understanding of what their counterparts actually do. This lack of understanding was most clearly related to the transition period during which incoming personnel were orienting to their positions and their organizations. Resolution of these misunderstandings was not audited, however, the lack of understanding was great enough to be brought to the Department of Nursing Headquarters' attention by a Head Nurses Forum in the format of a request for a Head Nurse Orientation Program. The program would serve to present the organization structure of WRAMC, scope of the hospital departments' activities and matrix network for communication and action completion. (Calderwood 1989) From the administrative perspective, no administrator could be found who had an orientation to his/her job as unit or floor administrator other than reading the job description, organization and functions manual (1985 version) or receive a brief statement of philosophy by the immediate supervisor. The accuracy of the available administrative documents has already been discussed which emphasizes the importance of active communication across layers of personnel.

Fulfillment of equipment requirements is a direct function of many people. The descriptions of the official interactions of these individuals indicate that commitment to active communication and planning efforts for equipment needs is essential. The research has shown, however, that the tools established to facilitate communication and planning efforts for nursing and administrative personnel are inadequate and do affect how well

the nurses and administrators can plan for equipment (furniture). Planning for furniture requires the melding of the structural system with personal interaction in such a manner to yield an effective process for furniture management.

THE PROCESS

Several documents published by HSC describe in detail the processes involved in identifying requirements, planning for and the procurement of equipment. (AMEDDPAS Users' Manual, HSC Circ 700-1, MEDCASE Manual) Though not presented completely, those elements of the equipment acquisition process that this writer feels are of particular interest to the equipment users and hand receipt holders are presented below.

An effective equipment planning program requires the cooperative effort of many individuals and it is the hand receipt holder who is officially designated as the responsible person for the identification of future equipment needs (AMEDDPAS Users' Manual 1984 154). The initial planning guide that ultimately starts the planning process is the AMEDDPAS 5 Year Equipment Replacement Report which is to be provided to the HRH annually, at least in the August time frame. (It will be mentioned throughout this discussion that planning for equipment ought to be a continuous process throughout the year and involve more people than those specifically held accountable by regulation. Should this not be the actual case, the equipment planning process, as officially described, provides a basic network of planning activity.) The Equipment Replacement Report, is a report that shows what equipment has been scheduled for replacement over the next fiscal year (FY) based on useful life estimates and date-put-into-service. Concurrent with

the generation of this replacement report, the maintenance managers are provided with reports that reflect the maintenance expenditures and the expenditure limits on item repairs. These maintenance managers are expected to alert the HRH and the MEDCASE manager when items are approaching their expenditure limit. During this phase of needs identification the HRH (in conjunction with service chiefs, users, etc.) anticipates needs based on changing technology and changing mission requirements which are not reflected in the data provided by the AMEDDPAS reports.

These equipment planning records (needs) then are categorized as equipment 'candidates' or equipment requirements depending upon their approval status. Items are candidates when they have been identified by the HRH as a future need, but this need has not yet been approved by Command. An item is elevated to 'requirement' status once it has received command approval. These lists of equipment candidates and requirements are then categorized by fund account (i.e. OMA/OPA) based on their unit cost, and designated for the CEEP or MEDCASE program.

For MEDCASE (OPA) funded items, the HRH (or other interested party) initiates a MEDCASE Program Requirement (MPR; DA Form 5027-R, Appendix C) that contains all pertinent information critical to decision making (description, quantity, unit price, justification, personnel requirements, status as replacement, modernization or new item, supplemental equipment requirement, interested party review such as maintenance, engineer, health physics, DRM, etc.).

Capital Equipment Expense Program (CEEP) items are identified to the CEEP manager via various documents such as a local form (e.g. WRAMC Form 1286-R), the DA Form 3953 (Purchase Request and Commitment Form), accompanying

manufacture literature, a CAPR (capability request as determined by Directorate of Information Management (DOIM)), statement of necessity (e.g. emergency) from one of the deputy commanders (documents provided - Appendix C). Much of the information provided on these documents is the same as that provided for MEDCASE submissions (e.g. 'interested party' clearance by health physics, maintenance, information management), however, there is space for specific designation of the item's priority position within the requesting party or service.

At WRAMC, the development of an equipment requirements list includes consensus-building processes departmentally and institutionally. Department chiefs are expected to submit a prioritized equipment list for both CEEP and MEDCASE items to the hospital's CEEP/MEDCASE manager. The priority has been reached generally by way of 'CEEP meetings' for CEEP items, and PBAC (Program Budget Advisory Committee) meetings for MEDCASE items during which the departments' staff discuss their needs in relation to everyone else's. Similar meetings at the institution level bring together the department chiefs with the Chief of Staff and Deputy Commander for Clinical Services (DCCS) for the validation of and consensus on hospital requests. These group meetings, plus a myriad of smaller group discussions are the mechanism by which the DCCS and Chief of Staff define the institution's MEDCASE and CEEP priority lists. (Other groups such as the Product Review Committee, the Furniture Committee and the Automation Task Force provide opportunity to bring equipment issues of a global nature to the decision makers' attention for incorporation into the equipment lists).

Varying attitudes of staff towards the process of generating an equipment list have been demonstrated in some of these meetings at the

department level. These attitudes have advocated ranges of behavior from the identification of numerous needs at the last minute (because more requirements generate more funds for equipment) to the methodical preparation of a list over a period of time based on how the equipment requirements fit into the plans for the department. Absence of key staff or their representatives or some other communication of their opinion at some of the critical meetings may be interpreted to indicate general indifference or ignorance of the importance of the process. The lack of comment on prepublished agenda items to include evaluation of owned and proposed equipment items not only increases the difficulty with which the department MEDCASE/CEEP manager can complete equipment request actions but lengthens the time period in which a department may see needs resolved and jeopardizes best use of resources. These actions contribute to the tendency for unilateral decision making.

High dollar value MEDCASE lists are submitted to HSC/MACOM and are used for determination of fund allocation to the activities. (AMEDDPAS User's Manual 1984 168) MEDCASE requirements may be submitted to HSC any time between 1 OCT-10 June. CEEP requirements, however, are submitted only as part of the budgetary process (HSC CIRC 700-1) and are, therefore, constrained by the time lines of the budgeting process for insurance of submission, evaluation and approval.

Complementary to the formal processes described above, the Directorate of Logistics has done its part to indoctrinate WRAMC with the idea of identifying needs that can be met through the MEDCASE and CEEP programs. The Directorate has published separate MEDCASE and CEEP Users' Manuals that simply and clearly define who, when, and how to submit these requests. Distribution of these manuals has been widespread and includes the Department of Nursing

via attendees at the DON MEDCASE/CEEP meeting. In the event a user did not receive a manual, the Weekly Bulletin and post newspaper have had frequent notification published that describes the initiation of the process to acquire equipment.

The process of equipment replacement, particularly in an institution the size of Walter Reed, is a laborious one. It requires many steps, many players, and commitment on the part of the players to coordinate the activities to define a requirements list. As discussed, the process of equipment management does not provide a clear operational path for the user to follow in initiating furniture acquisition. Furthermore, the incomplete understanding of the process on the part of many key personnel within the system has hindered the planning for and procurement of essential items of equipment. Even with the best utilization of the process for furniture acquisition, the definition of the needs, alone, does not complete the process. In order for the equipment to become a reality to the institution, it must be funded.

THE RESOURCING

The bulk of resources that Army MTF's operate on are classified as OMA fund (Operation and Maintenance, Army). Within the OMA system there are specific programs whose purpose is to support specific targets for overall Army mission. Program 8 has as one of its targets Army medical support. This support is generally defined as the provision of health services administration, health services in Army facilities, operation of the medical service schools, training at civilian institutions, and other related health services. (AR37-100-89 p.24)

Program 8 is specifically subcategorized into elements of resource (EOR - object classes) which are analytically helpful in preparing budget requirements and evaluating expenditures. HSC also publishes policies related to the conditions under which funds in one EOR may or may not be reprogrammed into or out of another EOR. The reprogramming capability is a flexibility factor that permits the local managers to exercise some control over the use of their resources. Those elements of resource within Program 8 which are most easily subject to the reprogramming authority are:

10- Civilian Pay and Benefits

21- Temporary Duty

22/2330/2340/24 - Transportation, Utilities and Printing

2310 - Rentals

2500 - Contracts

2600 - Supplies

3100 - Equipment (US Army HSC FY 89 Reprogramming Policies)

The reprogramming guidelines have been written so that available resources may be used most effectively and efficiently. For example, reprogramming into civilian personnel pay may be done only up to a certain percent and provided such reprogramming does not create an additional problem. Concurrently, programming funds out of civilian personnel pay and benefits can utilize funds elsewhere, such as in contracting, when positions which are difficult to fill have been left vacant. Within Program 8, there are subprograms, however, around which reprogramming is either prohibited or very

strictly controlled. These programs include the P84 Base Operations Support, and P84 HIV Testing. Although local authority is defined within HSC reprogramming policies, it is expected that the HSC Budget Analyst will be kept informed of all reprogramming actions (as informally as by telephone) so that the Command Data Base may be kept current. This data base is used to update the Obligation Plan and to keep HQDA, OMB and Congress briefed on current financial status as requested.

The manner in which actual supply dollars (EOR 2600) and equipment dollars (EOR 3100) are specified for allocation to MTF's is a dynamic one. The reader is referred to APPENDIX D which is a compiled representation of formulae used by HSC to analyze facility workload. The appendix demonstrates supply dollars allocation under the current MCCU system as well as under the proposed DRG system. One can see from both systems that accurate documentation of workload is essential and that under the DRG system precise coding of diagnoses with complementary procedures influence the total amount of supply dollars a facility receives. The supply dollar allocation is not static. Periodic review of facility activities throughout the year (including workload) poses a threat to the facility for withdrawal of supply dollars if the workload level on which the funds were allocated has not been met. The system works on the converse principle also - more workload throughout the year may mean more supply funds throughout the year. The point that must be made in recognizing that the facility has reprogramming authority with the supply funds is that this fund account is dependent upon workload and is subject to HSC manipulation because of the workload level.

The manner in which a facility receives its resourcing for equipment under the OREP program initially is less dynamic than that for the supply

system, but still depends on the facility's level of workload. The reader is referred to Appendix E which shows how the OEEP fund level is derived. One can see that in addition to decreased workload (productivity) other factors levy penalties against the facility that lower the funding level for the OEEP account. The supply funds and the OEEP funds are the primary sources for resourcing equipment purchases which would meet patient furniture needs and the fund levels are tenuous. The fact that the OEEP threshold has been subject to recent change (Evans 1989, Marley 28 May 1989) will further stress these funds for meeting equipment needs.

The Medcase and OEEP programs are the best-known programs for resourcing capital equipment. The Productivity Capital Investment Programs (PCIP) are another source for capital investment resourcing. The purpose of this program is to provide funds for items of equipment which improve productivity and/or reduce operating costs. The PCIP programs are the Quick Return on Investment Program (QRIP), the Productivity Enhancing Capital Investment Program (PECIP), and the Office of the Secretary of Defense Productivity Investment Funding (OSD PIF). A general attitude exists that almost all equipment is eligible for funding through QRIP including administrative and medical items. These sources of funds should not be overlooked when equipment projects need to be funded. Each capital investment item must cost at least \$5000.00; capital expense items must cost under \$5000.00 each. (Cooper 1988)

Note is made that, particularly through the monitoring of funded programs throughout the Command, HSC may have additional funds at the end of the fiscal year for distribution to MTF's and which can be applied to equipment programs. These funds become available as the result of cost savings

in the execution of programs and facilities' inability to obligate funds throughout a program's implementation phase (Wanersdorfer 1989), and other similar reprogramming actions throughout the federal system.

The federal system of resourcing equipment demonstrates one sharp point of contrast from private sector methods for meeting these needs. That point of contrast is the federal sector's failure to fund depreciation on equipment. Depreciation may be considered to be a cost of doing business, a cost levied against equipment and physical plant in particular. The concept represents the loss in serviceability from original value because of use of an item or facility. Depreciation (on equipment), as an element of expense then requires an element of resource to provide for replacement of the items, either like items or upgraded ones if the facility is expected to be maintained. Traditionally, hospitals have funded depreciation by including a depreciation component in the calculations for fixing prices of services. These charges have been figured into the reimbursement formulae when calculating charges for third party payors. Although there are different methods for calculating depreciation values and rates and different methods for levying these values against a source of income (Berman, et al. 95-97), the point to be made is that depreciation, at least to some extent, is funded in the non-federal sector. Federal hospitals do not fund depreciation. Theoretically, WRAMC could justify the designation of a portion of the supply and CKEP fund that was derived from the depreciation component as the fund for equipment replacement and upgrade if such a component were part of the formula. The formulae by which WRAMC's funds are allocated (Appendices D,E) do not have a depreciation component. Although many administrators at WRAMC (Johnson, D. 1988, Murry 1989, Maloney 1989, Thornton 1988) recognize the need to fund depreciation,

current resourcing at this time does not realistically permit such flexibility within the WRAMC budget to the extent needed.

Some consideration to depreciation of equipment is given annually but it provides no real payoff to a facility. Annually, a depreciation expense report for high dollar valued equipment is prepared by the Directorate of Logistics and submitted to HSC by the Directorate of Resources Management. Within the budget, it is reflected as an unfinanced requirement. An unfinanced requirement is an item within the budget that has been recognized as a justified requirement, however, it does not warrant allocation of funds when evaluated relative to other requirements. (Wanersdorfer 1989) The Depreciation Expense Report is ultimately used by the Surgeon General's Office and Department of the Army in defense of AMEDD and DA budget negotiations but no depreciation funding is filtered back to the facility. (Smeltzer, 1989)

In the process of defining the 1989 Command Operating Budget Estimate, WRAMC was given certain guidance by HSC. This guidance provided a total OMA dollar limit for mission activities. This dollar limit specifically excluded equipment requirements (EOR 3100 - CEEP). These equipment requirements were then reflected as unfinanced requirements and funded by HSC shortly after the beginning of the fiscal year. (Wanersdorfer 1989)

The purpose of this discussion is not to debate the appropriateness of the method of allocating resources to the mechanism for acquiring capital equipment (CEEP). It does have an objective, however, of drawing to the reader's attention the mechanisms in place by which resources are made available for the purchase of equipment. One can see from the formulae presented, that some of the factors on which the equipment dollars are dependent are productivity and efficiency of operation. Optimal operational

and administrative performance within a facility are very important if maximum funding and benefit from that funding is to be realized. Before submitting resource requirements, it is imperative that an activity have identified in a professional and detailed way those requirements for which resourcing is requested. HEO will then be in a better position to negotiate for funds. (Munley 1989) Support of the identification of such requirements was, in part, the basis for which this study was undertaken.

Effectiveness of the Patient Furniture Management System

The Condition of the Patient Furniture

As was mentioned in the introduction, the patient furniture in the hospital had deteriorated to a point where the image the wards presented was an aged one unbecoming to the premier Army medical facility that Walter Reed is. Bedside stands had been repaired so many times that many of them were having repairs done to the repairs. Veneers had long ago been chipped and broken off and drawers had disintegrated so that many of the stands only had an empty slot where the drawer used to fit. Although the beds continued to be essentially safely functional, the mattresses presented a major problem. The plastic covers had become cracked in many strategic places - the result of the years of use and abuse. (The abuse is expected from the environment and constant "in-use" status of the mattresses: inadvertent poking with needles and other sharp instruments and frequent washing with bacteriocidal solutions which has a drying effect.) The bedrails on many of these beds had been repaired however, repeated repairs on them was necessary. Some of the beds were not electric (those manual beds were not on the psychiatry wards). For the most part, the overbed tables worked well and retained an acceptable

appearance. Chairs that were in the patient rooms (straight back and loungers) had very marred and finish-worn woodwork, stained and worn cushions and broken down seats. These items are housed in patient rooms where the floor tile (especially in the latrine areas) is faded and stained, the walls have been stripped of paint by tape from patient cards and flow sheets and gouged by the furniture. Lastly, the verticle window blinds, if they were still hanging, were largely non-functional, various components of their operating hardware being missing or broken. All in all, the rooms were depressing to the well who do not have to stay in them. Certainly they were minimally contributory to the recovery of the patients.

The Action Plan

The past two years have seen much activity initiated to improve the general condition of the wards and its furniture. Exchange of manual beds for electric beds that had been in storage was initiated. Inventory of bed mattresses was taken and many of the badly worn mattresses were replaced. The worst of the bedside stands have also been replaced. A project has been initiated which designates 55 patient rooms which are spread throughout the inpatient wards for upgrade. These rooms are targeted for immediate redecorating and furniture replacement while the master plan for total refurbishment of the hospital interior is defined and initiated. The immensity of the whole renovation project and even the short term projects to take care of Walter Reed's immediate needs (beds, mattresses, 55 room upgrade, bedside stands) plus the ability to resource these initiatives short term and long term, suggest the need for a mechanism by which the organization can know what its needs are in priority so that resources for their procurement can be

designated while avoiding a crisis situation. Throughout the exercise of the processes already discussed earlier and in light of no growth budgeting, the need for an equipment replacement system tailored to Walter Reed's size and peculiarities is being recognized more within the WRAMC executive body.

(Hastings 1989, Thornton 6 Feb 1989, Marley 1989)

The Survey

The functional users - the nursing personnel on the wards - are the targeted population for any devised model for furniture replacement. The legitimacy of this target is substantiated in the previously mentioned job descriptions and government documents (AMEDDPAS Users Manual, HSC Circ 700-1) that stress the vital role played, at least, by the HRH. Particularly because of the size of the hand receipts at WRAMC, the success of a program must strive for the responsible input of all users of the ward, not just the HRH.

In order to identify those furnishings on the wards which are in need of replacement a survey was prepared. The basic survey aimed at providing information on individuals' knowledge of the equipment repair and replacement processes as well as their perceptions of how well the processes worked. The survey also sought input on individuals' perceptions about the condition of their particular ward and what was needed to make it better. Demographic information identifying an individual's rank, position and time at WRAMC was also requested as one's position and time within WRAMC may affect one's knowledge of the equipment management processes.

Prior to distribution to the two specific wards studied, a test survey was drafted, reviewed with a Nursing Research consultant, revised, tested on key staff of a ward on a separate floor from the investigated wards, and revised a second time. This final survey (Appendix F) was distributed to each

staff member on a selected medical ward and a selected surgical ward. In addition to the basic nursing staff, this survey plus a sheet that requested numbers of specific items of furniture that needed to be repaired and/or replaced or upgraded was distributed to the head nurse, wardmaster, log tech, unit administrator, floor administrator, floor NCO, nursing section chief, nursing section NCOIC, and the Logistics Assistant Officer. The purpose in requesting the specific numbers of items needed from each of these individuals was to identify who, specifically, would be required to provide specific numbers of items for replacement, to identify consistency of need identification (conversation with the head nurse of the ward where the survey was first tested revealed that the head nurse and wardmaster did not always agree on what was needed) and to quantify equipment needs so that a dollar figure for resourcing could be determined and used in constructing a hospital-wide estimate for budgeting purposes. Except for the demographic data and the specific numbers, the rest of the survey was designed with open-ended questions to permit the staff full freedom to express their understanding of the systems and air any concerns related to equipment replacement in general and furnishings in particular.

The Results

The ward responses were diverse. The surgical ward returned only 35% of the surveys, 90% of those returned were from officers and administrators. One-quarter of these returned surveys were directly distributed and collected by the surveyor. Distribution and primary collection of the survey was dependent upon the acting head nurse (a junior officer) who was also providing patient care during the period of the survey. Thirty per cent of the enlisted

staff on this ward were E2 and E3 in rank. Eighty per cent of the officer staff were of the rank O1,O2. This description of the staff background indicates that the ward staff knowledge of the repair/replacement processes in general is very limited without considering the peculiarities of the Walter Reed system. The medical ward returned 97% of the surveys in large part due to the diligence of the head nurse. Twenty-seven per cent of this ward's enlisted staff were of the E2,E3 rank. Forty-two per cent of the officer staff was at the O1,O2 rank. The time in service or time in station of the staff on each ward did not reflect an expected knowledge base or impact level of the staff. For example, one assistant wardmaster who is an E6 who has been at WRAMC approximately 8 years did not indicate very thorough knowledge of the equipment replacement process. On the other ward, the wardmaster (E7) seemed overwhelmed by the request for specific data, did not return the survey, and in conversation with the head nurse, unit administrator and floor administrator, this wardmaster was perceived to be more an obstacle to repair and replacement processes than a facilitator. The acting head nurse on the surgical ward, though an O2, provided accurate and detailed documentation of the repair and replacement process. The O4 head nurse on the medical ward provided skeletal information that was generally accurate.

Not all of the questions were answered on each survey, but of the questions answered, those completing the survey indicated better understanding of the equipment repair process than of the replacement process. 'Replacement' in survey responses referred primarily to items accommodated by the supply budget or in-house excess items (i.e. not newly ordered). Although there were a variety of answers, the log tech and wardmaster served equally in being the staff's initial link to the repair process but the wardmaster was relied on

more for equipment replacement. The staff got repair and replacement information primarily from the wardmaster, secondarily relying on the log tech for information. Survey responses indicated that information did have to be asked for and that not everyone in an administrative position performed their job to the expected level of some of the other staff with whom they worked when considering equipment management. Few respondents mentioned items needing repair or replacement that were not specified in the survey or mentioned as an example. All but five respondents said the wards were 'ship-shape', clean (even 'exceptionally' clean) and clutter-free when all staff helped keep the wards organized. (Even in spite of the significant concurrence of staff that the wards were clutter-free, under the space provided to indicate how the ward equipment situation could be improved, the single most reported need was for more storage space.) Of those who pointed out that the wards needed new equipment, furnishings or a 'facelift', all but one was in an administrative or clinically administrative position. Those staff in these administration related positions are involved directly with the MEDCASE/CEEP programs or in collecting data for replacement task forces. The one respondent who was not on the administrative staff and provided the most specific description of the refurbishing needs was a civilian contract nurse who was perhaps more sensitive to the environment needs because of varied exposure to other hospitals.

Several reasons for the limited survey responses are plausible. As was already noted, much activity had been initiated to replace bedside stands, the manual beds, mattresses and ward lounge furniture. Vendor display of furniture (primarily beds) had been conducted and a task force was collecting information for total bed replacement. In addition, several months earlier, a

design firm had done an extensive survey of the hospital in preparation for the inside renovation master plan. The survey included visits to all clinical areas, interviews with key staff (e.g. head nurses, wardmasters) picture taking, and publishing of a final report. (Ellerbe Becket 1989) Staff could have perceived this survey to serve no constructive purpose to warrant time investment for its completion, a general impression having been conveyed that furniture needs are being tended to.

The equipment management system at WRAMC is dependent upon the unit administration system for its success. Both of these systems are dependent upon the people who work with and within them for their mutual success. Review of the job descriptions, discussion with personnel in each of the positions in support of the systems as well as review of the surveys imply that there is a lack of understanding among clinicians and administrators on the scope of the role they and their counterparts play in the equipment management system.

Table 1. reflects a consolidation of numbers of furniture items identified in the survey needed on an average medical or surgical ward. No consistency of numbers of items needed was reflected on data sheets for each of the two wards surveyed.

**Table 1. Estimated Costs for Replacement of Select Items of Ward
Patient Furnishings (estimates for one ward only)**

	Unit Cost	# of Units	Total
Beds	\$3000.00	44	\$132,000.00
Bedside Stands	\$ 106.00	44	4664.00
Overbed Tables	\$ 100.00	44	4400.00
Total			\$141,064.00

Above total for beds represents 25% of the total FY 89 CEEP Budget.

Prices were provided by the WRAMC MEDCARE Manager.

Note is made also that, based on dollar value, the bedside stands and overbed tables are funded by supply monies, not CEEP.

The reported furniture needs from the survey are of limited predictive value for budgeting purposes. The narrow scope of the reported needs further confirms the lack of understanding on the part of the functional users of the full extent of their role in maintaining their environment. These two observations alone make it clear why the wards are in their present condition and why, given no motive to change the way they get things done, the wards cannot expect to have their environment improved expeditiously. Accordingly,

total financial requirements are not satisfactorily identified. This deficit has a negative impact on the OEEP fund allocation.

System Review

Review of the literature and conversations with professionals in the healthcare equipment acquisitions business generally agree on the primary components for an equipment acquisition system. These components are: realistic capital budgeting in tune with organizational goals and objectives, interdepartmental communication and cooperation, and accountability for responsible equipment management. The capability of an organization to undertake realistic capital budgeting is a function not only of well defined organizational goals and objectives but also of the organization's resourcing capability to meet current requirements while considering the organization's long term needs. Interdepartmental communication and cooperation to meet organizational goals and objectives and acquisition of departmental needs in support of the organization are vital, especially in large organizations. The components for responsible equipment management require reasonable documentation of equipment purchase and placement within the facility, provision for preventive and restorative maintenance and determination of economic and technical useful life. The sources consulted endorse a variety of mechanisms, formal and informal, technically sophisticated and basically simple, which can provide organizational decision makers with the detailed information they need to responsibly allocate limited resources. (Rosenblum 1989, George 34, Chae, et al. 1987, Bockow 1982, Health Tech Mar-Apr 1987)

Investigation into how equipment (e.g. patient furniture) is acquired at WRAMC shows the process to be a complicated one. The structure of the system

includes the AMEDDPAS system and the MEDCASE and CEEP programs. The processes by which the structures are utilized include various reporting mechanisms that are part of the AMEDDPAS, MEDCASE and CEEP programs and the various formal and informal meetings that are a part of the process to generate those reports. The outcome of the system should result in the acquisition of patient furniture in a satisfactory time frame which maintains the environment in an esthetically safe state. It is through evaluation of the system outcomes that the evaluation of the overall system's success can be determined.

Despite the extensive development of the equipment acquisition system its use has not provided for satisfactory equipment acquisition (in this case, patient furniture) as evidenced by the run down condition to which the furniture was allowed to deteriorate without planned replacement. Several elements are perceived to contribute to the shortcomings of the equipment management (patient furniture replacement) system at WRAMC. Limited financial resources is an important factor. The figures presented for beds for one standard ward alone represented 25% of the entire FY 1989 CEEP allocation exclusive of year-end funds. Documentation from the FY 89 Mid Year Review (Appendix G) shows that total equipment and support item requirements were for \$2,563,000. These requirements have been funded from HSC at a level of \$525,000. An additional \$1,200,000. of funds have been reprogrammed from within other accounts to help meet equipment needs. Changing dollar thresholds for equipment that is to be bought with CEEP funds threaten the availability of these funds for future use even more. Competition for furniture funding vs. medical equipment funding is, therefore, keen. The inadequacy of the AMEDDPAS and Property Book systems to include all equipment (furnishings) in the automatic reporting processes eliminates significant numbers and categories of

items from guaranteed periodic evaluation for replacement. Changes proposed for higher thresholds for entry into the Property Book system are certain to aggravate this deficit. The fact that the current equipment management system identifies requirements representing less than 3% of the total Property Book value highlights the magnitude of the deficiencies. Transience of personnel, periodic shortages of personnel particularly in administrative support positions, and the intricate communications and operating systems within which WRAMC operates further contribute to system deficiencies. Within some hospital committee operation, unless departmental project officers were specifically named in committee, action on some projects was delayed until this oversight was corrected, often months after the initial project had been initiated. In some areas where furniture (not beds) was replaced the key staff were not aware that their area was to receive new furniture, nor were the items satisfactory for the area in which they were placed (Moore 1989). This may reflect the fact that requests for patient furniture may be fed through the clinical or administrative channels, both of which have many layers. In the case of ward furniture (e.g. beds) the request may be reflected on the medical department's MEDCASE/CEEP list or on the Department of Nursing's MEDCASE/CEEP list. The significant difference in priority a bed will have on the Department of Surgery list versus the Department of Nursing list is obvious. Furthermore, the Department of Nursing MEDCASE/CEEP list historically has supported central materiel needs heavily but also includes some non-nursing equipment (e.g. microscopes). This imprecise designation of items considered for replacement within the department MEDCASE and CEEP programs further demonstrates the difficulty of need identification. Furniture items that fall below the CEEP threshold are candidates for ward supply funds that are managed by the unit or

floor administrator. Also, as was highlighted by the survey, consistency of what represents a need among users, local managers and command staff is lacking.

The fact that WRAMC has been able to rectify the problem furniture situation somewhat once the problem became so visible to attract attention from the command group while still conducting business as usual, suggests that better application of systems components ought to have been able to prevent the reactionary crisis responses which now must be conducted. Although as a part of our American culture, we often tend not to react until the crisis situation gets our attention (Kiley 1989, Scherkenbach 17, Munley 1989) such behavior is contradictory to the intentions of the supply, maintenance and resource systems and makes the institution dependent upon particularly perceptive and determined individuals who either have a certain strong power base from which to act, or who can influence a powerful decision maker.

SOLUTIONS

A model that would improve the effectiveness of WRAMC's equipment management systems would be expected to address the system deficiencies noted above. The structural deficiencies of the system lie in its exclusion of much of the patient furniture in AMEDDPAS and the limitation of the resourcing mechanisms to meet the vast replacement needs. Processes for identifying and reporting replacement needs in a responsible and timely manner are thus not in place for these pieces of equipment. Documentation of equipment date-put-into-use information is not available so that, in conjunction with the mobility and varied knowledge base of the military staff, furniture generally does not get considered for replacement until it is dysfunctional and causes a hazard or is continuously inconvenient. Improved effectiveness of the

equipment management system with emphasis on patient furniture requires a consistently ongoing operation so that crisis situations are avoided, the justification of equipment needs can responsibly and successfully meet the scrutiny of higher headquarters, and appropriate and cost effective purchase packages can be executed expeditiously. The model would be expected to function well when used by inexperienced staff who may be new to the facility. Its use eliminates dependency upon any one individual to be a catalyst for effective operation.

The recommendations for changes to the equipment acquisition process focus on a quality assurance (QA) model. In so far as quality can be described in terms of people, management and organization (Brazil 21 Jan 88), best utilization of available resources (Brazil 5 Jan 88) and conformance to requirements (Crosby 80), the quality concept is endorsed by the Joint Commission for the Accreditation of Healthcare Organizations (AMH, 1989,iii, Agenda for Change Video 7 NOV 87, Agenda For Change Nov 86) plus a myriad of business professionals, reporters and DOD (Scherkenbach 1988, ReVelle 1989, Skrzycki 1989, Lackman Part 3, Machalaba 1989, Kiley 1989, Johnston 1989, Strickland 1989). A QA model is chosen also because the concept is one that has been developed and applied within the hospital setting for many years. This conceptual understanding should facilitate the implementation of the comprehensive model.

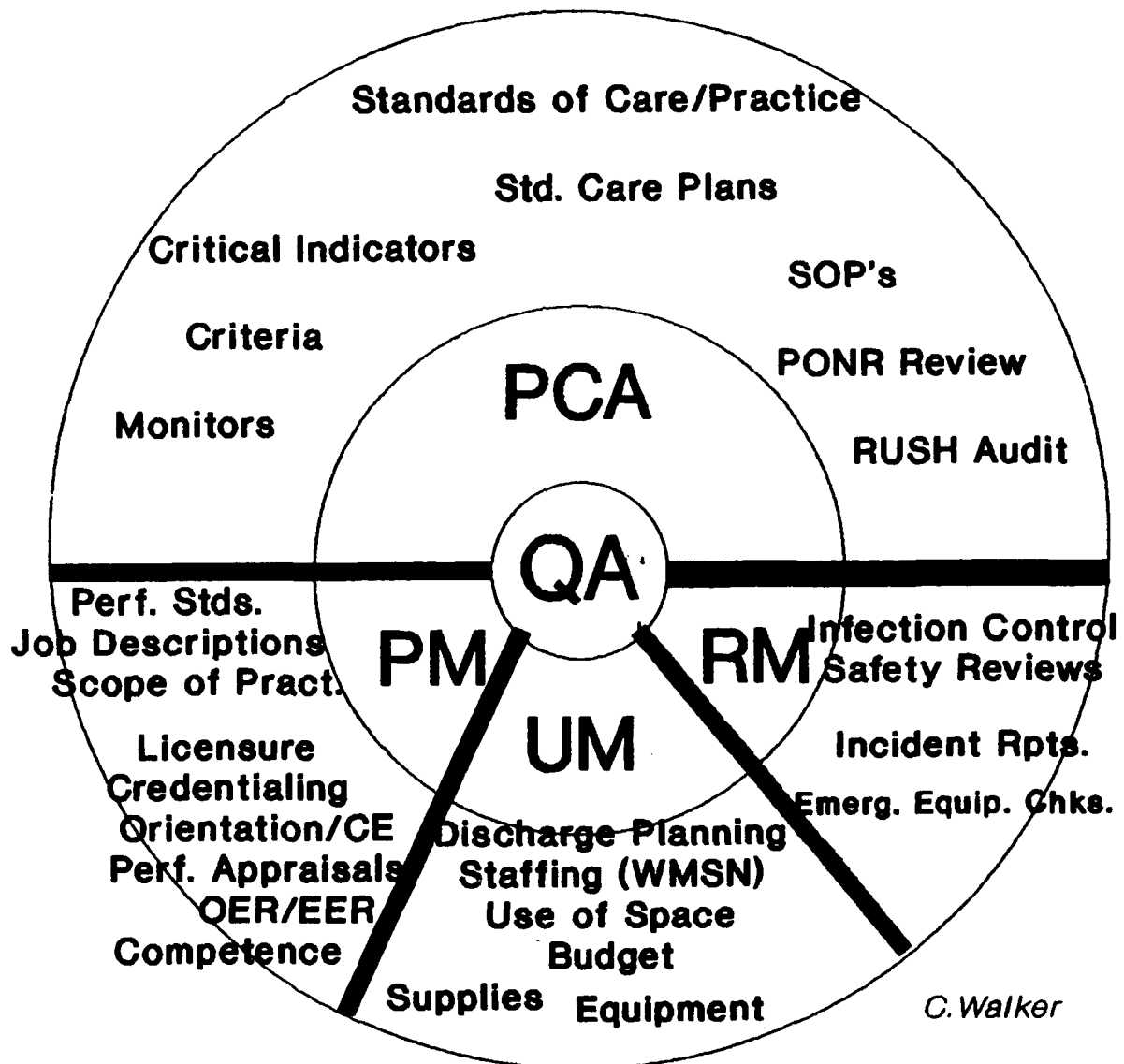
A common theme endorsed by most of the above sources is that of a quality assurance program that is integrated throughout the organization and reflects top management's ideals and objectives. Such a structure to the QA program uses the techniques of identifying 'constancy of purpose' (ReVelle 1989, Scherkenbach 9) and decreasing variability within system operation to

achieve not just a 'zero deficit' system but one that is always, actively looking for ways to improve the system. The quality approach that is advocated here as a model for improved equipment (patient furniture) acquisition is a more comprehensive and actively integrated system than what is operating presently. It provides a system for routine monitoring of furniture condition that will facilitate need identification. The model also provides for assignment of responsibility of specific tasks related to need identification so that the equipment management system can be applied to ward needs independently of personnel knowledge of the overall equipment acquisition process or an individual's familiarity with WRAMU's organizational structure.

THE MODEL

An example of a comprehensive Quality Assurance model for the Department of Nursing is shown in Fig. 1. (Walker 1988) This model expands the various Department of Nursing quality assurance programs in use at WRAMU by bringing under the QA cover, not only the clinical (patient care) component, but also personnel management, utilization management, and risk management. This model recognizes the role of non-clinical operations that are very important to the delivery of health care to a patient and is described in the draft revision of the DON QA plan.

Expansion of this concept actively coopts more people of the unit level health care team, all having the common goal of delivering quality care. Such an increase in size of the QA Team brings more people to focus on the specific purpose at hand. In large organizations, especially, the more people who are involved in problem solving the greater the success of the problem resolution. (Johnson 1988, Scherkenbach 57,128, Revelle 1989)



PCA = Patient Care Assessment
PM = Personnel Management
UM = Utilization Management
RM = Risk Management

FIG. 1. A Model for Comprehensive Nursing Quality Assurance

The benefits of using the comprehensive QA model to improve the effectiveness of the furniture management system is demonstrated in the following application of the Personnel Management component of the model. As reported in the survey and staff interviews, not everyone knows the requirements of their jobs to the extent necessary for optimal effectiveness in general, and in acquiring furniture, specifically. Focused effort to clarify these responsibilities not only in accurately written job descriptions but also by way of an active employee orientation program would facilitate staff's understanding of direct responsibilities, of options for conducting business, and of other personnel who are instrumental in the decision-making process, selecting the best option and implementing it. Such an orientation is expected to speed up the process of effective and economic decision making. In the process of role clarification, including the administrative staff in the nursing staff orientation process could indirectly achieve increased awareness of the specific responsibilities each person has to ward operations in general and furniture management specifically.

A complementary Utilization Management component of the QA model that also has an impact on furniture acquisition is the budget. Ward budgets are essentially supply budgets allocated to unit administrators from the floor administrators. Given a need identification, there is limited potential to manage the supply budgets to accommodate some of those needs for furniture. Such action, however, could not be achieved through one ward's efforts alone. Communication of the need to the administrative staff for agreement with the need and interest to negotiate cooperative effort throughout the floor is necessary.

The recommended model for patient furniture replacement follows the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) Ten Step Monitoring and Evaluation Process (JCAHO 1988). The elements of this process are listed below:

1. Assign responsibility
2. Delineate scope of care
3. Identify important aspects of care;
4. Identify indicators related to these aspects of care;
5. Establish thresholds for evaluation related to the indicators;
6. Collect and organize data;
7. Evaluate care when thresholds are reached;
8. Take actions to improve care;
9. Assess the effectiveness of the actions and document improvement;
10. Communicate relevant information to the organizationwide quality assurance program.

The process is detailed and provides structural elements against which an established system can be developed to facilitate furniture replacement and equipment management consistently. The reader is referred to Appendix H where the ten step process has been applied to a set of standards and criteria that address some of the deficiencies of the current system. An efficient application of the process requires the use of various tools by the wards which are not in use presently. Some of these tools include a data base to

identify those furniture items not presently managed under the AMEDDPAS or Property Book or that will not be so managed if the anticipated changes already discussed take place. Such a data base could group like items and account for location, purchase date and purchase price, estimated useful life, and monitoring findings from the QA program. A standard or customized furniture list (Appendix I) could serve as a basis to assess the adequacy of furniture items per room. Use of these tools with the guidelines for the monitoring and evaluation process would ensure that appropriate and timely attention would be given to identifying patient furniture needs regardless of the experience level of the staff assigned to the ward or the turnover rate of staff assignment to the wards. Use of these QA mechanisms to support furniture requirements is also important because it enhances the visibility of furniture needs to the command group. Identification of patient furniture needs through DON channels would consolidate all the needs throughout the hospital within the DON CEEP list. The furniture is sure to be higher at the DON priority list than it would be on the Department of Surgery or Department of Medicine list. Use of the 10 Step Process in conjunction with the comprehensive QA model ensures more appropriate identification of (DON) requirements. This appropriate increase of DON equipment requirements for CEEP funding will increase the percentage of CEEP funds allocated to the DON. The probability of patient furniture needs being met more expeditiously under this QA program is greater than that which exists now.

One may debate the appropriateness of the nursing personnel assuming responsibility for these furniture management activities. The inadequacies of the present system and future changes highlight the fact that furniture replacement problems will only worsen if a system is not established and

implemented that will address present and future needs consistently. Assigning these responsibilities with the functional user (in this case, the nursing personnel) in this manner helps make the problem of patient furniture management small enough to control by those who are most directly affected by its operation. The direct communication chain will be clarified, need identification will be initiated on the ward and transmitted to C, DON by way of the DON MEDCASE/CEEP Committee where unit needs can be addressed and translated into aggregate Department needs. Figure 2. depicts the complete model proposed for individual wards to use in the replacement of patient furniture. Emphasis is made, however, that communication and consultation with the personnel identified previously in the discussion (e.g. Unit Administrator, Floor Administrator, NMA, etc.) will continue to be essential to ensure that the DON needs are compatible with and complement those of other organizations throughout the hospital.

The scope and effectiveness of this model are limited to those components of furniture management over which the ward and the Department of Nursing have direct control. These components focus on those systems which contribute to identification and evaluation of needs and being the catalyst to get those needs met. Ultimately, the Command Group will judge the appropriateness of the requests and decide the extent to which support will be appropriated (in dollars). For the reasons detailed above, the decisions will not be easy. Adoption of this QA model or a similarly comprehensive model throughout WRAMC, however, would provide its leaders not only with consolidated, accurate information, but also promote constant efforts of the whole facility toward increasing efficiency. In these changing times it is very important that WRAMC be well informed of current and anticipated

regulatory changes as they affect patient care immediately and in the future. This QA model provides a mechanism to analyze those changes for impact on all aspects of patient care and provide our leaders with good information with which they can negotiate for necessary resources.

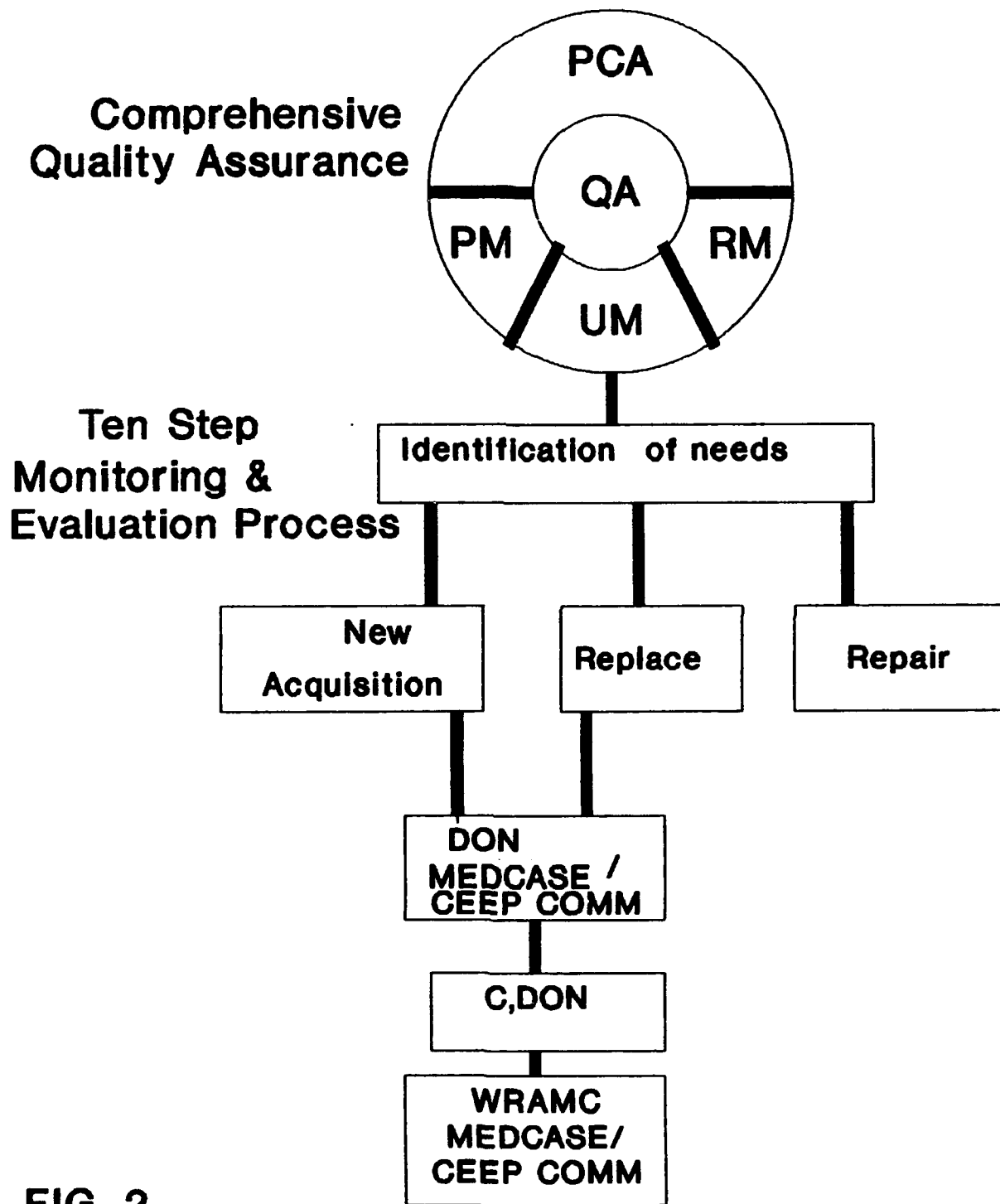


FIG. 2.
Model for Furniture Replacement

ENDNOTES

- American Hospital Association. Estimated Useful Lives of Depreciable Hospital Assets. 1976 Edition. Chicago.
- Becich, Raymond B. Personal Interview. National Institutes of Health Clinical Center. Bethesda, MD. 18 Nov. 1988.
- Bockow, Lester D. 'Equipment Acquisition Decisions. Life Cycle Cost Analysis.' Hospital Topics. Jan.-Feb. 1986. 14-19.
- Brazil, Ann. Quality Assurance Class Presentation. 5 Jan. 1988. Academy of Health Sciences. San Antonio.
- . Quality Assurance Class Presentation. 21 Jan. 1988. Academy of Health Sciences. San Antonio.
- Calderwood, MAJ Philip A. After Action Report. Head Nurse Conference Results. Walter Reed Army Medical Center. Washington, D. C. 28 Nov. 1988.
- Chae, Young M., James D. Suver and David Chan. 'Goal Programming as a Capital Investment Tool for Teaching Hospitals.' HCM Review. Winter 1985. 27-35.
- Carver, Donald C. Planning for Hospital Expansion and Remodeling. Springfield: Chas. C. Thomas. 1968
- Chaufournier, Roger. Personal Interview. The George Washington University Hospital. Washington, D.C. , 19 Sep. 1988.
- Cooper, Jodi. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 6 Sep. 1988.
- Crosby, Philip B. Quality Without Tears. Plume, New York. 1984.
- Department of the Army. AR 37-100-89. The Army Management Structure. 1 Mar. 1988. 23-24.
- Department of the Army. Office of the Surgeon General Health Facility Planning Agency. Office of the Chief of Engineers Medical Facilities Design Office. Medical Design Guide. Volume 3. Oct. 1987.
- Ellerbe Becket. Interior Master Plan Study. Phase One - Programming. Walter Reed Army Medical Center - Building 2. Mar. 1989.
- Evans, MAJ. Eddie. Personal Interview. Office of the Surgeon General. Arlington, Va. 1 May 1989.
- George, LTC Harvey W. 'Integrating Capital Equipment Management.' Journal of Healthcare Materiel Management. Nov. - Dec. 1987: 30-33.
- Gray, William J. 'Capital Financing Techniques for Health Care Facilities: A Historical Overview.' Health Care Strategic Management. Mar. 1984: 4-8.

- Hastings, COL James. Comments. Commander's Morning Report. Walter Reed Army Medical Center. Washington, D.C. 1 Feb. 1989.
- Johnson, Marion L. "Equipment Purchasing Process." AORN Journal Jan. 1988. 214-220.
- Johnson, COL Donald A. Personal Interview. Walter Reed Army Medical Center. 20 OCT 1988.
- Johnston, Oswald. "Delivering the Goods in Services." The Washington Post. 26 Feb. 1989:A2.
- Joint Commission on Accreditation of Healthcare Organizations. 1989 Accreditation Manual for Hospitals. Chicago. iii.
- Joint Commission on Accreditation of Healthcare Organizations. "Monitoring and Evaluating the Quality and Appropriateness of Care." Information Paper. 21 Jan. 1988.
- Junikiewicz, James J. "Involved in a Construction Project? These Suggestions May Help." Hospital Materials Management Apr. 1986. 3-7.
- Kiley, Robert. "New York is Falling Apart." Prod. George Crile. 60 Minutes. 19 Feb. 1989.
- Lackman, Michael. "Controlling the Project Development Cycle. Part 3 - Tools for Successful Project Management." Journal of Systems Management. Feb. 1987.
- Machalaba, Daniel. "On Track. Transit Manager Shows New York Subway isn't beyond Redemption." Wall Street Journal. 14 Oct. 1988: A1.
- Maloney, Mr. John. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 1Jun 1989.
- Margoleus, Alan. Telephone Interview. 16 Jan. 1989.
- Marley, COL. Duke. Personal Interview. Directorate of Logistics. Walter Reed Army Medical Center. 27 Jan. 1989.
- . Personal Interview. 28 May 1989.
- Mervis, MAJ. Stuart. Personal Interview. Directorate of Logistics. Walter Reed Army Medical Center. 30 Aug. 1988.
- . Personal Interview. 2 June 1989.
- Moore, CPT. D. Personal Interview. Walter Reed Army Medical Center. 2 Feb. 89.

Munley, COL Thomas. Personal Comments. HSC-WRAMC Directorate Chiefs Meeting. Walter Reed Army Medical Center. 5 JAN 1989.

Murphy, Roger. Telephone Interview. Sheraton-Washington Hotel. 16 Jan. 1989.

Murry, LTC James. Personal Interview. Directorate of Medical Activities Administration. Walter Reed Army Medical Center. 1 Jun. 1988.

'Replacing Unsafe or Aging Equipment.' Hospital Topics. Mar.-Apr. 1987. 46-51.

ReVelle, Jack B. 'Total Quality Management - TQM.' Telecast Program, The George Washington University. Washington, D.C. 4 May 1989.

ReVelle, Jack B. 'Total Quality Management - TQM.' Telecast Program, The George Washington University. Washington, D.C. 4 May 1989.

Rosenblum, Victor S. Personal Interview. Sherikon, Inc. Alexandria, Va. 18 Apr. 1989.

Rosenblum, Victor S. Letter to COL Henry B. Marley, Jr., Director of Logistics. 2 Mar. 1989.

Scherkenbach, William W. The Deming Route to Quality and Productivity, Road Maps and Roadblocks. CERP Press. Washington. 1988.

Skrzycki, Cindy. 'Baldrige Award: Hard work for High Honors. As Quality Issue Heats Up, So does Competition for Prize Honoring It.' The Washington Post. 18 Apr. 1989: D1,D6.

Smeltzer, LTC. P. Telephone Interview. Health Services Command. Property Management Division. Requirements Management Branch. 15 Jun 89.

Straughn, Pat. Telephone Interview. Hyatt Regency. Chicago. 21 Feb. 1989.

Strickland, Jack O. 'Key Ingredients to "Total Quality Management." Defense 89. Mar.-Apr. 1989. 17-21.

Summary of JCAHO Live Video Tape - 7 November 1987. Class Handout. Academy of Health Sciences. San Antonio. 21 Jan. 1988.

The Joint Commission's Agenda For Change. Class Handout. M27HEHD-06K-2 127. Health Care Administration Division. Academy of Health Sciences. San Antonio.

Thornton, COL. Joseph. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 6 Feb. 1989.

---. Personal Interview. 31 Aug. 1988.

United States of America. Department of the Army. Headquarters, Walter Reed Army Medical Center. WRAMC Reg. 40-610. Medical Logistics. 'The Medical Care Support Equipment Program (MEDCASE).' 1 Sep. 1983.

United States of America. Department of the Army Health Services Command.
'Automated Data Systems Manual AMEDDPAS USERS MANUAL.' Ft. Sam Houston,
Texas. 1 Oct. 1984.

United States of America. Department of the Army Health Services Command.
Circular 700-1. 'Capital Equipment Programs.' Ft. Sam Houston, Texas.
10 June 1987.

United States of America. Department of the Army Health Services Command.
Fiscal Year 89 Reprogramming Policy. San Antonio.

United States of America. Department of the Army Health Services Command
Directorate of Logistics. HSLO a1712-89-013-01 thru 04. 'Formula for
Determining Activity Proportionate Share for FY 89 CEEP Funds.

United States of America. Department of the Army. Headquarters, Health
Services Command. 'Memorandum for Commanders. FY 89 Midyear Review, RCS
CSCAB-205.' San Antonio, Tx. 24 Apr. 1989.

United States of America. Department of the Army Health Services Command
Resources Management. HSRM A1712-89-002-09 thru 18. 'Facility Unique
Supply Dollar Allocation Rates.' San Antonio. 1989.

United States of America. Department of the Army Health Services Command.
Directorate of Resources Management, Walter Reed Army Medical Center.
Directorate Information Packet. 'The Productivity capital Investment
Programs.'

Van Hook, LTC. Thomas. Personal Interview. Department of Defense Health
Facilities Planning Agency. Arlington, Va. 14 Mar. 1989.

Walker, MAJ. Charlene. Personal Interview. Walter Reed Army Medical Center.
Department of Nursing. 2 Dec. 1988.

Walter Reed Army Medical Center. Directorate of Resources Management.
'Standard Operating Procedure for Financial Management.'

Walter Reed Army Medical Center. Directorate of Resources Management. 'FY 89
Command Operating Budget Unfinanced Requirements. Equipment and Support
Items.' Midyear Report.

Wanersdorfer, MAJ. Joseph. Personal Interview. Directorate of Resources
Management. Walter Reed Army Medical Center. 12 Apr. 1989.

CHAPTER III CONCLUSIONS AND RECOMMENDATIONS

Conclusions

A unit level model for replacement of patient furnishings identifies those items in need of replacement within a system that routinely monitors and evaluates furniture condition and directs the requisition according to appropriate fund source. The model is incorporated into a comprehensive quality assurance program that establishes furniture management criteria complementary to the AMEDD system and independent of the expertise level of ward personnel.

The dynamic and uncertain environments of the healthcare and military systems combine at WRAMC to produce a challenging and multivariant system. Structural and behavioral deficiencies in the WRAMC system have contributed to oversight of the equipment management system which has resulted in aged patient furniture and an appearance of neglect. The image such an environment conveys is not conducive to patient healing nor staff satisfaction. As the primary purpose for WRAMC's existence is patient care which is accomplished by way of integrating standards, people and other resources through management, a comprehensive quality assurance model for resolution of the problems related to the furniture management system was chosen. The value of this model is that by integrating the furniture (equipment) management system into a total quality model for unit operations, furniture issues are not neglected, are kept in perspective with other operational issues and hospital and command decision makers are provided with the necessary information to make responsible decisions.

WRAMC is now twelve years old and whereas much of its patient furniture

is approaching acceptable end of useful life by estimated date put into service, the physical appearance of of the furniture suggests that replacement should have already occurred. Analysis of the systems which contribute to furniture management reveals that not all patient furniture is incorporated into the systems and the roles that individuals play in furniture management are not clearly understood. The model described incorporates the JCAHO Ten Step Method for Monitoring and Evaluation to address these issues and provides the mechanism through which furniture replacement can be more timely and appropriate.

Recommendations

In order for this model to be implemented effectively, it is recommended that:

1. The Department of Nursing accept the comprehensive Quality Assurance Model proposed here and in the revised draft of the DON QA Plan;
2. The defined 10 Step Monitoring and Evaluation Process presented in Appendix H be incorporated into the DON QA plan for identification of patient furniture needs on individual wards;
3. The DON designate a task force to develop a data base to facilitate the monitoring and evaluation of patient furnishings that are not adequately covered by the AMEDLPAS and Property Book systems;

4. The chairperson of the DON MEDCASE/CEEP Committee or some other designated individual be the QA liaison for equipment issues under the Utilization Management element of the program;

5. All personnel who attend outside educational functions at government expense be required to visit the available exhibits for the purpose of bringing back information on equipment innovations and improvements. This information would be given to the individual designated in #4 above;

6. The DON continue with its revision efforts applied to nursing personnel job descriptions and that standardized, specific activities lists which encompass the requirements for furniture management be developed for unit level job descriptions and placed on each ward;

7. The DON investigate various methods for providing its personnel with pertinent information on the organizational structure of the hospital and the roles and responsibilities of those nonnursing personnel who impact on ward operations;

8. The DON, DOL and DRM monitor the effectiveness of the use of this model to determine not only the appropriateness and completeness of requirements identification, but also the effect on resource (e.g. supply) use, enhancement of reprogramming and purchasing capability, and staff development and productivity;

9. DOL aggressively continue with its efforts to teach the equipment management system and indoctrinate the WRAMC staff and MEDCASE managers on the processes to identify those requirements not readily identified by the AMEDDPAS system;

10. DRM actively petition HSC for expansion of the capital investment program in consort with these more accurately defined requirements so that the known shortfall in capital equipment depreciation funding may be met more satisfactorily.

APPENDIX A

Definitions

Functional User is an individual or organization for whom the use of an item is essential. Absence of the item would impair the user's ability to complete his/its mission significantly.

Funded depreciation is a method of generating cash for asset investment and is a function of the hospital's current depreciation expense. The cash generated is invested in interest-yielding securities to offset inflation and to increase until needed. (Berman, et al, 49)

Hand receipt is an extension of the Property Book. It is an inventory list by which the location of items and individual responsibility (custody, care and safekeeping) for items is acknowledged. (AR 710-2)

Hand receipt manager is a position unique to WRAMC because of the size of the property management system and the extent of its requirements. The person in this position is a liaison between the HRH and the Property Book Officer. The manager performs the mechanical aspects of property transactions such as transfers, additions, deletions and other changes to hand receipts that would be performed by a medical logistics specialist in other facilities. The managers also assist the HRH in inventories and property identification. Each manager has 30-40 hand receipts to manage (total of 347). (Tomitz 21 JUN 89)

MED 250 Report critical component in the process of certain fund determination is the RCS(Med 250) Report, produced locally, that provides a dollar summary of property book assets and equipment data for each of a five year period of time. This report is used by MACOM (HSC) in consolidated form to make up the command report that is forwarded to the Surgeon General's Office (SGO). The SGO then forms the master report which reflects all of the AMEDD property value and replacement requirements and becomes a part of the 5 Year Defense Program Annual Update. (AMEDDPAS Users' Manual, 168) This report has no significant impact on an individual facility's acquisition of MEDCASE funds but it does contribute to HSC's defense of overall equipment requirements. The total requirements submitted to HSC are included in calculating a facility's CKEP budget (Appendix E). (Smeltzer, 1989)

Nonexpendable items require property book accountability and are defined in a variety of ways. For purposes of this paper and its discussion, nonexpendable items include medical furniture that is maintenance significant and costs less than \$1000.00, nonmedical furniture greater than \$300.00, and medical furniture greater than \$1000.00. (Mervis 2 JUN 1989)

Property Book is a document that accounts for nonexpendable equipment. (AR 735-5) The value of the WRAMC Property Book is \$96 million.

Retained earnings are the amount of earnings retained in an organization. They are computed by subtracting all liabilities and contributed capital from assets. (Neumann, 594)

APPENDIX B

Estimated Useful Lives of Depreciable Hospital Assets

American Hospital Association
1978 Edition

Estimated Useful Lives of Depreciable Hospital Assets

1978 Edition

American Hospital Association
840 North Lake Shore Drive • Chicago, Illinois 60611

THIS PUBLICATION is intended for use as a *guide* to estimating useful lives for the various depreciable assets used in the operation of a hospital. Estimated useful lives are one of the primary factors in the calculation of depreciation expenses.

Depreciation accounting is the periodic write-down or allocation of the cost of a limited-life asset or class of assets in conformity with the best available estimates of an asset's useful life. Depreciation accounting, therefore, determines the book value of an asset, although it has nothing to do with the fair market value of the asset from time to time.

Three factors have the greatest effect upon the estimated useful lives of depreciable assets: physical deterioration, management intentions, and technical obsolescence.

- Physical deterioration limits the life of an asset to what is normally known as its physical life. An asset's physical life often varies according to maintenance policies and location. An asset's location directly affects its usage and, therefore, its useful life. Whether a hospital is in an urban or rural area and which department an asset is used in must be taken into consideration.
- Management intentions can significantly alter an asset's life. For example, a storage building may be required at present; however, a new wing planned to be built in five years may necessitate the tearing down of the building before its physical life is complete. In this case, assignment of a five-year life to the building would be appropriate. Another example of management intentions affecting depreciable life is the case in which assets are normally retired in a time period shorter than suggested in order to avoid high maintenance costs in the later years and to obtain a higher salvage value. Adequate documentation of management intentions, which is used as the basis for a useful life decision, should be maintained.
- Technical obsolescence involves the replacement of an asset before the expiration of its physical life, at the end of what is known as its economic life. Economic life is determined by scientific discoveries, development of new equipment, improvements in existing technologies, changes in community requirements for health care, new electrical and life safety codes, and so forth. Recently, hospitals have become highly vulnerable to technical obsolescence. As new generations of advanced equipment are developed, replacement parts for existing equipment become extremely expensive and often unavailable. This situation forces hospitals to purchase new equipment. The market for used equipment of this nature is very limited; therefore, salvage value is very low, although the asset's physical life is far from exhausted.

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When using this publication, the reader must keep two important considerations in mind: (1) Capitalization policies will vary among hospitals. Therefore, some of the assets presented here may be properly classified as expense items for many hospitals. (2) Although certain assets will be kept in service for a longer or shorter period than the useful lives indicated here, the estimates are believed to be industry averages that will permit an equitable allocation of the cost of the assets over their lifetime. Nevertheless, useful lives assigned to significant assets and classes of assets should be periodically reviewed and, if actual experience or new circumstances dictate, should be adjusted.

EXAMPLE OF COMPUTATION OF COMPOSITE RATE

For a group of assets within a department, an overall composite rate can be computed by establishing individual depreciation amounts for each unit of equipment. The following example shows the computation rate of depreciation for certain equipment in a housekeeping department.

<i>Kind of Equipment</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>	<i>Estimated Useful Life, years</i>	<i>Amount of Annual Depreciation</i>
Cabinets	4	\$150	\$ 600	20	\$ 30
Carts, utility	10	228	2,280	12	190
Chair, metal	1	150	150	15	10
Desk, metal	1	300	300	20	15
Floor-waxing machine	2	500	1,000	5	200
Floor-scrubbing machine	2	600	1,200	10	120
Shelf units	11	100	1,100	20	55
Vacuum cleaners	5	220	1,100	10	110
TOTAL			<u>\$7,730</u>		<u>\$730</u>

The composite rate for the housekeeping department in the above illustration would be 9.44 percent (\$730 divided by \$7,730).

TABLE 2

Estimated Useful Lives of Individual Items of Major Movable Equipment

Item	Years	Item	Years	Item	Years
Accelerator	8	Blood gas apparatus,		Clock	10
Accounting bookkeeping		volumetrics	10	Clopay wrapping machine	10
machine	10	Blood warmer	10	Clothes locker	
Acculab	5	Blood warmer coil	10	Fiberglass or metal	18
Adding machine	8	Boiler, copper	20	Laminate or wood	12
Air conditioner (window)	5	Bookcase, metal	20	Cobalt unit	8
Analyzer		Bottle washer	10	Coffee grinder	10
Autos	10	Bovie unit	10	Coffee maker	5
Clinical	10	Breathing unit, positive		Cold pack unit, floor	10
Gas	10	pressure	8	Collator, electric	10
Oxygen	10	Broiler	10	Collector, silver, automatic	10
pH gas	10	Bronchoscope	10	Colonscope	10
Ambulance	4	Buffer, electric	8	Colposcope with floorstand	8
Amplifier	10	Bulletin board	10	Compactor, waste	10
Anesthesia unit	10	Burnisher, silverware	15	Compressor, air	15
Ankle exerciser	15	Cabinet		Computer assisted system	
Apparatus		Bedside	15	for exercise	5
Anesthesia	10	File	15	Computer, cardiac output	5
Resuscitating	10	Metal or wood	20	Computer	
Blood transfusion	10	Solution	20	Large	7
Bone surgery	10	Cage, animal	10	Mini	5
Arthroscopy instrumentation	10	Calculator	8	Computer terminal	5
Aspirator	10	Camera	8	Conductivity tester	10
Audiometer	10	Camera, TV monitoring,		Conveyor system, laundry	15
Autoclave	20	color or black and white	8	Conveyor, tray	15
Automobile		Camera, videotape,		Cooker, pressure, food	10
Delivery	4	color or black and white	8	Cooler	
Passenger	4	Can opener, electric	10	Walk-in, freestanding	15
Autoscaler, ionic	10	Canopy, ventilating, ironer	15	Water	10
Auto suture stapler	7	Capsule machine	10	Copier	5
Balance	15	Cardioscope	8	Coulter counter	7
Basal metabolism unit	8	Carpeting	5	Credenza	15
Bassinet	15	Cart		Cribs	15
Bassinet, heated	10	Food tray, heat-refrig	10	Croupette	10
Bath		Maid	10	Crusher, syringe	8
Paraffin	10	Medicine	12	Cryo-ophthalmic unit with	
Sitz	10	Supply	10	probes	10
Serological	10	Utility	12	Cryostat	10
Water, laboratory	10	Cash register	10	Cryosurgical unit	10
Whirlpool	10	Cassette changer	10	Cutter	
Battery charger	10	Cautery unit	10	Cloth, electric	10
Bed		Central processing unit	10	Food	10
Electric	15	Centrifuge	10	Cystometer	10
Manual	15	Centrifuge, refrigerated	8	Cystoscope	10
Bedpan washer	20	Chair		Data card processing unit,	
Beepers, paging	5	Commode	15	including keypunch,	
Bench, metal or wood	15	Dental	15	verifier, reader, sorter	8
Bilirubin lamp	10	Executive	15	Data printing unit	8
Bin, metal or wood	20	Geriatric	15	Data storage unit	
Binder, punch machine	10	Hydraulic surgeon's	15	Mechanical	10
Biochemical analysis unit,		Kinetron	15	Nonmechanical	15
micro	8	Metal or wood	15	Data tape processing unit,	
Bipolar coagulator	10	Patient	15	including controller, drive,	
Blanket drier	15	Specialist	15	tape deck	8
Blanket warmer	15	Charcoal deodorizer	5	Decalcifier	10
Blenders	10	Chart rack	20	Defibrillator	8
Block, butcher or meat	10	Chart recorder	10	Densitometer, recording	8
Blood chemistry analyzer,		Check signer	10	Dental drill with syringe	10
automated	8	Child immobilizer	15	Dermatome	10
Blood cell counter	10	Chloridimeter	10	Desk, metal or wood	20
Blood gas analyzer	10	Chromatograph, gas	10	Diagnostic set	10

APPENDIX C

FORMS FOR MEDCASE AND CEEP REQUESTS

MEDCASE: Medcase Program Requirement (DA Form 5027-R)

CEEP: WRAMC Form 1286-R
DA Form 3953 (Purchase Request and Commitment
Form)

CAPR (Capability Request with supporting
documents: statement of necessity)

MEDCASE PROGRAM REQUIREMENT		DATE
ACTIVITY: (Name, Address, and TDA No.) Walter Reed Army Medical Center ATTN: HSHL-LR Wash. DC 20307-5001		FROM: (Div/Dept/Svc) Receipt No.
STANDARD ITEM DESCRIPTION OR GENERIC NOMENCLATURE: (App N. 388-75-MEDCASE)		(FOR LOGISTICS DIVISION USE ONLY) ACN _____ BLIC _____ POINT OF CONTACT & PHONE NO. NAME _____ AV _____ COM _____
EXTENDED OR SYSTEM DESCRIPTION		
QUANTITY _____ UNIT PRICE _____		
JUSTIFICATION		
1. HOW IS FUNCTION NOW BEING ACCOMPLISHED?		
2. WHY IS THIS EQUIPMENT REQUIRED? (E.g., workload data, new technology, cost reduction, maintenance costs, equipment down-time or nonavailability, obsolescence of current methods, other facts which demonstrate cogent reasons for your requirement.)		
ARE PERSONNEL ASSIGNED AND TRAINED TO OPERATE EQUIPMENT? <input type="checkbox"/> Yes <input type="checkbox"/> No (If No, explain)		
REMARKS: (any additional considerations such as impact if equipment is not provided)		
ITEM TO BE REPLACED <input type="checkbox"/> Yes <input type="checkbox"/> No NSN: MMCN: Nomenclature: Serial No.: Model No.: Location: Proposed Disposition: <input type="checkbox"/> Retain as back-up <input type="checkbox"/> Turn-in as excess		
SPECIAL EQUIPMENT CATEGORY <input type="checkbox"/> For New or Renovated Facility (BLIC F) (BLIC M) <input type="checkbox"/> Clinical Investigation at Authorized MEDCEN/MEDDAC (BLIC C) <input type="checkbox"/> Drug and Alcohol Program (BLIC D) <input type="checkbox"/> Pollution Control (e.g. USAEHA) (BLIC P) <input type="checkbox"/> Replace, modernize, or acquire equipment for existing facility (BLIC R) <input type="checkbox"/> Replacement Item of Equal Capability <input type="checkbox"/> Replacement Item with Improved Capability <input type="checkbox"/> New Requirement		
EQUIPMENT REQUIREMENTS <input type="checkbox"/> Additional Electrical Support or Emergency Power <input type="checkbox"/> Water, Drainage or Steam <input type="checkbox"/> Exhaust <input type="checkbox"/> Gas (Air, O ₂ , Vacuum, Propane, etc.) <input type="checkbox"/> Emit Radiation, Microwaves, Laser, Radioactive, or Has Radioactive Materials as Component <input type="checkbox"/> Unusually Heavy or Bulky <input type="checkbox"/> Requires Installation <input type="checkbox"/> Heating, Ventilation, or Air Conditioning <input type="checkbox"/> Other		
I CERTIFY THE INFORMATION ON THIS PAGE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. (Signature, Typed Name & Title of Requestor) THIS EQUIPMENT IS NECESSARY FOR THE ACCOMPLISHMENT OF THIS ACTIVITY'S MISSION. (Signature, Typed Name & Title of Chief of Div/ Dept/ Svc)		

PURCHASE REQUEST AND COMMITMENT For use of this form, see AR 37-108; the proponent agency is USAFAC.		PURCHASE INSTRUMENT NO.	REQUISITION NO.	DATE	PAGE	OF PAGES
TO: Purchasing and Contracting Officer		THRU:		FROM:		
It is requested that the supplies and services enumerated below or on attached list be: DELIVERED TO						
PURCHASED FOR		NAME AND TELEPHONE NO. OF PERSON TO CALL FOR ADDITIONAL INFORMATION				
The supplies and services listed below cannot be secured through normal supply channels or other Army supply sources in the immediate vicinity, and their procurement will not violate existing regulations pertaining to local purchases for stock, therefore, local procurement is necessary for the following reason: (Check appropriate box and complete item.)		Fund Certification The supplies and services listed on this request are properly chargeable to the following allotments, the available balances of which are sufficient to cover the cost thereof, and funds have been committed.				
LOCAL PURCHASES AUTHORIZED AS THE NORMAL MEANS OF SUPPLY FOR THE FOREGOING BY	REQUISITIONING DISCLOSES NONAVAILABILITY OF ITEMS AND LOCAL PURCHASE IS AUTHORIZED BY	ACCOUNTING CLASSIFICATION				
EMERGENCY SITUATION PRECLUDES USE OF REQUISITION CHANNELS FOR SECURING ITEM	AMOUNT					
ITEM	DESCRIPTION OF SUPPLY OR SERVICES	QUANTITY	UNIT	ESTIMATED	DATE	TYPED NAME AND TITLE OF CERTIFYING OFFICER
				Unit Price		SIGNATURE
				Total Cost		
THE FOREGOING ITEMS ARE REQUIRED NOT LATER THAN AS INDICATED ABOVE FOR THE FOLLOWING PURPOSE						
Approved by commanding officer or his designee						
DATE	TYPED NAME AND GRADE OF INITIATING OFFICER	SIGNATURE	DATE	TYPED NAME AND GRADE OF COMMANDING OFFICER OR DESIGNEE	SIGNATURE	
DATE	TELEPHONE NO.	TYPED NAME AND GRADE OF SUPPLY OFFICER	SIGNATURE			

DA FORM 3953
1 AUG 76

PREVIOUS EDITIONS OF THIS FORM WILL BE USED UNTIL EXHAUSTED.

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DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
ASNE-HL-IC (25 5b)	Information Capability Request (CAPR) Approval

TO HSHL-L FROM C, Info. Ctr DATE 19 Oct 87 CMT 1
 ATTN: MAJ Stigugis DOIM CPT Morris/rap/61703

1. The Information Capability Requests (CAPR) assigned Request Control Number WRAM 74870198 administrative approval. Enclosure 1.
2. You may now begin the request for funds; MEDCASE, CEEP, PCIP, or other for this requirement.
3. Microcomputer requirements must be procured from the Army Requirements contracts. When the equipment and software have been received please notify the DOIM, Information Center, 6-1703.
4. Point of contact is Ms. D. Williams Information Center, DOIM, 6-1703, 1704, 1705.

Encl

Diana Morris
 DIANA MORRIS
 Captain, MS
 Chief, Information Center
 DOIM

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INFORMATION CAPABILITY REQUEST (CAPR)



RCS:

1. DOCUMENT CONTROL NUMBER:
WRAMC7487198

2. DATE OF REQUEST: OCT 18 1987

4. APPROVAL AUTHORITY:

3. SERVICE REQUIREMENT DATE:
880201

a. Information Mgt Master Plan NBR: HSC7486019
b. Activity IMP Nbr: WRAM86008
c. Other (Specify):

5. TYPE OF REQUIREMENT: Expansion of existing Automated Administrative Support System within the Directorate of Logistics, WRAMC

6. REQUESTING ORGANIZATION AND LOCATION:

- a. Command Line: Commander
b. Facility: WRAMC
c. ATTN: HSHL- L
d. Location: Washington, D.C. 20307-500 1
e. Installation CMD: HSC

7. IMA DISCIPLINE SUPPORTED: (Please circle the most appropriate discipline)

Automation Communications Records Management Printing/Publishing Visual Information

8. POINT OF CONTACT:

- a. Name: MAJ Anne Sturgis c. Commercial Telephone Number: (202) 576-2700
b. AUTOVON: 291-2700 d. Location (Office Symbol): HSHL-LP

9. REQUIREMENT:

- a. Justification: See continuation sheet.
b. Generic description of equipment, software, service, or item:

QUANTITY	DESCRIPTION	ESTIMATED COST
1	Power 5/32x including 2.4 MIPS, 8 MB memory, 380 MB Disc Drive, 45 MB tape drive, 24 RS 232 ports unix license for up to 32 users Officepower License up to 8 users (Model 5832/240)	\$45,144 (OPA)

10. CHANGES TO EXISTING SERVICE:

- a. What is being changed? Computer Consoles Inc system 532 16 user.
b. Reason: See Justification on continuation sheet.

INFORMATION CAPR (CONT.)

RCS:

DOCUMENT CONTROL NUMBER:

11. SECURITY PROTECTION:

Nonsensitive IAW AR 380-380

12. COMPATIBILITY Essential. This ^{is} expansion and upgrade of existing system MFG by Computer Consoles Inc. (GS00K86AGS5541)

13. FUNDING:

RESOURCES SUMMARY

CURRENT RESOURCES:

APPROPRIATION

OPA

OMA

RDTE

OTHER (SPECIFY)

CY

BY

FY 88

FY 89

TOA:

END STRENGTH:

AC

USAR

CIV

TOTAL

RESOURCE REQUIREMENTS

(Shortfall)

CY
FY 88BY
FY 89

POM YEARS

FY 90 FY 91 FY 92 FY 93 FY 94

Appropriation

OPA -----99,400

OMA -----63,960

RDTE

OTHER

(Specify)

TOTAL ----- 163,360

20,400 20,400 20,400 20,400 20,400

20,400 20,400 20,400 20,400 20,400

END STRENGTH:

AC

USAR

CIV

14. REMARKS: Replaces CAPR WRAMC 7486 00 11

FY 89 OMA funds exclude site preparation cost

FY 89 OMA funds include \$20,400 for hard and software maintenance which may not be required.

15. APPROVAL:

HENRY B. MARLEY JR.

COL, MS, CofS

(Director of Operations)

20 OCT 1987

JACOB H. PERKINS, COL, MS

(IMO/DOIM/Date)

d.

Installation DOIM/Date (Coordination Only)

DONALD A. JOHNSON, COL, MS, CofS-WRAMC

Commander Authentication/Date

INFORMATION CAPABILITY REQUEST
(continuation sheet)

9 . JUSTIFICATION: In FY87 a 16 user microprocessor system was procured (MEDCASE ACN 0100-85-056) and installed within the Directorate of Logistics to automate administrative and operational tasks. The system provides integrated calendar management for multi users; electronic mail; telephone messages; reminders; name/address listings; word processing; data base and data files management with forms and reports writing, look up tables and limited math operations; spreadsheet operations; graphics; business calculator operations; system administration and archiving. The initial size of the system was limited and installed at only selected key sites in order to evaluate potential. The system has been in use and evaluated over an 8 month period. It has proven to be an invaluable tool in processing information, consolidating data bases for shared use, rapid data access and analysis, reports writing and centralized task control. The system is substantially more efficient than placing individual PC's at user sites with a subsequent proliferation of application software and provides uniformity in data bases and data records.

At present only 13 users sites are connected and effectively service only about 75 personnel. The balance of the directorate staff (about 400) still handle administrative and general management functions in the manual mode which is archaic and incapable of adequately responding to management needs. The desired expansion will permit users sites to expand from 16 to 48. The 32 additional sites have been targeted and represent the balance of unserved principle management operators within the directorate. Once this expansion is installed and evaluated, it is anticipated that there will be a follow on expansion requirement for specific task area sites.

This system is UNIX based and will interface with the planned WRAMC Patient Administrative Support System (PASS).

9 b. Description (continued):

<u>QUANTITY</u>	<u>DESCRIPTION</u>	<u>ESTIMATE COST</u>	
1	OFFICE POWER LICENSE UP TO 32 USERS	\$8560	(OPA)
1	24 PORT BOARD (MODEL 5832/700)	\$7,400	(OPA)
20	TERMINALS (CCI PT II MODEL 4606)	\$31,600	(CPA)
5	MICROCOMPUTOR 256K, DUAL DISK 5 IN, RS 232 PORT WITH KEYBOARD AND COLOR SCREEN (ZENITH OR OTHER IBM COMPATIBLE)	\$13,200	(OMA)
6	PCPOWER SOFTWARE (CCI MODEL 8150)	\$800	(OMA)
8	PRINTER, 55 CPS (CCI MODEL 4922)	\$19,360	(OMA)
6	PRINTER, 19 CPS (CCI MODEL 4919)	\$3,804	(OMA)
8	PRINTER, GENCOM MODEL 3014	\$7,200	(OMA)
1	DISK DRIVE 175 MB (CCI MODEL 5332/800)	\$4,752	(OPA)
LOT	INSTALLATION	\$1,924	(OPA)
LOT	CLASS A SOFTWARE SUPPORT	\$370/MO	(OMA)
LOT	HARDWARE MAINTENANCE	\$1,330/MO	(OMA)

SMITH 80

APPENDIX D

Facility Unique Supply Dollar Allocation Rates

HSC RM

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FACILITY UNIQUE SUPPLY DOLLAR ALLOCATION RATES

**BAR (BASE ALLOCATION RATE) +
RAG (RESOURCE ALLOCATION GROUP) ADDITIVE +
BRANCH OF SERVICE ADDITIVE +
CHAMPUS PHARMACY ADDITIVE +
MILITARY LABORATORY AND PHARMACY ADDITIVE +**

FACILITY UNIQUE SUPPLY ALLOCATION RATE

FINAL SUPPLY ALLOCATION INDEX

FACILITY UNIQUE SUPPLY ALLOCATION RATE

=

MHSS AVERAGE SUPPLY ALLOCATION WEIGHT

FINAL FACILITY SUPPLY ALLOCATION INDEX

SUPPLY ALLOCATION CALCULATIONS

MWUs X FACILITY UNIQUE FINAL SUPPLY ALLOCATION INDEX =

SUPPLY WEIGHTED MWUs

SUPPLY WEIGHTED MWUs	X	MHSS FY 86 SUPPLY COST PER MWU FACILITY SPECIFIC	=	PROJECTED MTF SUPPLY COSTS
----------------------------	---	--	---	-------------------------------

MEDICAL TREATMENT FACILITY **MEDICAL WORK UNITS** **&** **SUPPLY DOLLARS**

MTF	SUPPLY ALLOCATION INDEX	PROJECTED FY 89 MWUs	*PROJECTED MTF RATE PER MWU*	MTF PROJECTED SUPPLY ALLOCATION	HSC RATIO ADJUSTMENT (0.9677)
1	.9908	14,300	\$397	\$5,624,871	\$5,443,188
2	.7812	3,000	\$313	\$ 733,547	\$ 709,853

*STANDARD SUPPLY ALLOCATION RATE X FINAL SUPPLY ALLOCATION INDEX

INACCURATE REPORTING AND ITS IMPACT ON FUNDING

MEDDAC X

	DISPOSITIONS	CLINIC VISITS	IWU*	AWU	MWU
ACTUAL	8810	420,500	8810	11,560.7	20,370.7
REPORTED	8610	410,000	8610	11,272.0	19,882.0

*RCMI OF 1.0000

INACCURATE REPORTING AND ITS IMPACT ON FUNDING

MEDDAC X

	MWU	SUPPLY ALLOCATION INDEX	MHSS COST PER MWU	TOTAL
ACTUAL	20,370.7	1.01	\$330.38	\$6,797,372
REPORTED	19,882	1.01	\$330.38	<u>\$6,634,301</u>
			DIFFERENCE	- \$ 163,071

**MEDICAL RECORD ACCURACY
EXAMPLE #1**

SMITH 87

AGE	35	35
SEX	M	M
DISPOSITION	HOME	HOME
PRINCIPAL DIAG.	UNSPECIFIED ALCOHOL DEPENDENCE, CONTINUOUS	UNSPECIFIED ALCOHOL DEPENDENCE, CONTINUOUS
SECONDARY DIAG.	—	CARE INVOLVING REHABILITATION PROCEDURE
DRG	435	436
WEIGHT	.5903	.9788

**MEDICAL RECORD ACCURACY
EXAMPLE #2**

AGE	35	35
SEX	M	M
DISPOSITION	HOME	HOME
PRINCIPAL DIAG.	BRONCHOPNEUMONIA ORGANISM UNSPECIFIED	BRONCHOPNEUMONIA ORGANISM UNSPECIFIED
SECONDARY DIAG.	_____	ANEMIA ASSOCIATED WITH NUTRITIONAL DEFICIENCY
DRG	090	089
WEIGHT	.8961	1.2862

MEDICAL RECORD ACCURACY EXAMPLE #3

AGE	55	55	55
SEX	M	M	M
DISPOSITION	HOME	HOME	HOME
PRINCIPAL DIAG.	VIRAL PNEUMONIA UNSPECIFIED	VIRAL PNEUMONIA UNSPECIFIED	VIRAL PNEUMONIA UNSPECIFIED
SECONDARY DIAG.		DIABETES MELLITUS W/O COMPLICATION INSULIN DEPENDENT	DIABETES MELLITUS W/O COMPLICATION INSULIN DEPENDENT
PRINCIPAL PROC.			CLOSED ENDOSCOPIC BIOPSY OF LUNG INJECTION OF INSULIN
OTHER PROC.			
DRG	090	089	076
WEIGHT	.8961	1.2862	2.0885

COMPARISON OF FUNDING

MCCU VS DRG

	FY 89 MCCU PRO- GRAM	MCCU UNIT COST	TOTAL SUPPLY	MWU FY 89	SUPPLY ALLO- CATION INDEX	MWU SUPPLY ALLO- CATION	PRORATA ADJUST- MENT	DIFFER- ENCE
DDEAMC	1291	27.60	13,005,534	35850.2	1.1909	13,890,494	13,443,748	438,214
FAMC	1418	32.59	16,867,606	43119.0	1.2459	17,478,440	16,916,298	48,692
LAMC	1036	33.35	12,610,969	31005.9	1.1959	12,063,964	11,675,963	-935,006
MAMC	1913	22.05	15,396,302	48243.7	1.0178	15,975,478	15,461,675	65,373
TAMC	1966	22.26	15,973,553	50062.4	1.0125	16,491,399	15,961,003	- 12,550
WRAMC	2308	33.39	28,128,404	74538.5	1.2474	30,250,823	29,277,896	1,149,492
WBAMC	1743	23.46	14,925,135	44311.2	1.0128	14,601,215	14,131,611	- 793,524

APPENDIX E

**Formulae for Determining Activity Proportionate Share for FY 89
CCEP Funds**

Significance of the MED 250 Report as it relates to resourcing is explained in Appendix A.

Under the Penalty Matrix, the 100 and 80 % missed goals refer to levels of allocated MEDCASE funds that were not obligated.

HSC LOG

FORMULA FOR DETERMINING ACTIVITY PROPORTIONATE SHARE FOR FY 89 CEEP FUNDS

SMITH 92

$$\begin{array}{c}
 \text{ACTIVITY} \\
 \text{PROPORTIONATE} \\
 \text{SHARE}
 \end{array}
 =
 \left[
 \begin{array}{c}
 \text{ACTIVITY IDENTIFIED SCHEDULE 8 REQUIREMENTS} \\
 \text{TOTAL} \\
 \text{IDENTIFIED SCHEDULE 8 REQUIREMENTS} \\
 (?)
 \end{array}
 +
 \begin{array}{c}
 \text{ACTIVITY MED 250 CEEP REQUIREMENTS} \\
 \text{TOTAL} \\
 \text{COMMAND CEEP REQUIREMENTS} \\
 (?)
 \end{array}
 +
 \begin{array}{c}
 \text{ACTIVITY PRODUCTIVITY (MCCU) TOTAL} \\
 \text{COMMAND PRODUCTIVITY} \\
 7.6
 \end{array}
 \right]
 \times
 \begin{array}{c}
 \text{AMOUNT AVAILABLE FOR DISTRIBUTION}
 \end{array}$$

3

FORMULA FOR DETERMINING FINAL ACTIVITY ALLOCATION

FOR SUPPLEMENTAL RELEASES

FINAL		ACTIVITY	
ACTIVITY	—	PROPORTIONATE	—
ALLOCATION		SHARE	PENALTY

FORMULA FOR DETERMINING ACTIVITY PROPORTIONATE SHARE FOR FY 88 SUPPLEMENTAL RELEASE AND FY 89 PROGRAM GUIDANCE

SMITH 94

$$\begin{array}{c}
 \text{ACTIVITY} \\
 \text{PROPORTIONATE} \\
 \text{SHARE}
 \end{array}
 =
 \left[\frac{\text{ACTIVITY MCCU}}{\text{TOTAL HSC MCCU}} + \frac{\text{ACTIVITY 1A's IN DATA BASE}}{\text{TOTAL 1A's IN DATA BASE}} \right] \div 2 \left(\text{AMOUNT AVAILABLE FOR DISTRIBUTION} \right)$$

PENALTY MATRIX

<u>DECREASED PRODUCTIVITY FY85 - FY87</u>	<u>MISSED 100% GOAL</u>	<u>FY 88 YTD PERFORMANCE</u>	<u>MISSED 80% OBJECTIVE</u>	<u>LATE 250 REPORT</u>	<u>% TOTAL PENALTY</u>	<u>DOLLAR PENALTY</u>
X		(ALL ACTIVITIES ARE ON TARGET)			10%	\$ 43,400
	X		X	X	10%	49,700
					20%	64,400
NA	X			X	20%	\$ 33,600
NA	X		X		20%	9,800
X					10%	11,200
X					10%	4,900
X					10%	21,000
X	X		X		30%	35,700
	X				10%	9,100
X	X		X	X	40%	14,000
X	X				10%	11,900
NA				X	10%	14,700
NA	X		X		20%	<u>5,600</u>
					TOTAL	\$800,800

APPENDIX F

Survey distributed to Staff and Key Administrative
Personnel for a Medical and Surgical Ward at WRAMC

The last page was distributed to key administrative personnel only.

27 MAR 89

Dear

I am Major Christie Smith, one of the administrative residents in the US Army-Baylor University Graduate Program in Health Care Administration. As part of the residency I have a management project that focuses on a particular problem at Walter Reed. The project looks at why the particular area is a problem and what can be done to improve or resolve the situation.

My particular project deals with acquisition and replacement of hospital equipment with specific focus on that equipment (e.g. furnishings) found in a typical patient room. Part of my project includes identifying how we actually go about getting new or replacement items. This is the point where I need your help.

Attached is a survey that I would like you to complete for me. There are no 'right' or 'wrong' answers as I'm trying to find out how you go about getting things done on the ward, recognizing that the established system may or may not suit your needs.

Please feel free to write additional comments anywhere on the survey. Hopefully, the information you provide will expedite the process of getting needed equipment/furnishings for your ward.

When you have completed the survey you may

- call x3955, leave word, and I will pick up the survey
- leave the survey in the box for Administrative Residents in the Department of Nursing distribution room
- give the survey to _____ and I
(ward designee)
will pick it up
- drop the survey off in room 3K02

I do thank you for taking the time to complete this survey and assist me with my project.

Christie A. Smith
MAJ, AN

I

a. What do you do when you have an item that needs to be repaired?

b. Is there a form(s) that you turn in as part of the repair notice? (If so, please attach a copy).

c. To whom do you give the repair notice?

d. How long does it generally take to get an item repaired?

e. Who gives you information on when the item will be repaired?

f. Do you get a replacement item until the broken one is fixed? yes_____ no_____ sometimes_____

If no, how do you get along?

II.

- a. What do you do when an item needs to be replaced?
 - b. How is it determined that replacement is needed versus repaired?
 - c. Is there a form(s) that you submit in the replacement process? (Please attach a copy). yes_____ no_____
 - d. To whom do you give the replacement request?
 - e. How long does it take to get an item replaced?
 - f. Who gives you information on when the item will be replaced?
 - g. Do you get a substitute item until this item is replaced? yes_____ no_____ sometimes_____
- If no, how do you get along?

III. The system works for

- | | | |
|--------------|----------|---------|
| a. repairing | yes_____ | no_____ |
| b. replacing | yes_____ | no_____ |

If no, what needs to be changed?

SMITH 100

My grade is: E 1__ 2__ 3__ 4__ 5__ 6__ 7__ 8__
 O 1__ 2__ 3__ 4__ 5__ 6__
 GS 3__ 4__ 5__ 6__ 7__ 8__ 9__ 10__ 11__ 12__
 OTHER: _____

I have been at WRAMC: less than 6 months___
 6-12 months_____
 12-18 months_____
 18-24 months_____
 2-4 years_____
 If more than 4 years, how many?_____

My present position is _____.

Please describe the physical condition of the ward (e.g.
'ship-shape', run down, crowded, clutter-free, etc.)

What else would you like to say about the equipment situation on
your ward?

Do you ever have need for any of the information requested below? Yes ___ No ___

If Yes, do you ever get the information yourself? Yes ___ No ___ Sometimes ___

If you rely on others to provide you with the specific information requested below,
who are these people? _____

Why do you ever need this information? _____

Is there a special time of year when you collect this information? Yes ___ No ___

If yes, when is this special time? _____

Repair = basic structure is ok, item may need refinishing,
reupholstering, new mattress, etc.

Replace = item is unsalvageable in actuality or by recommendation,
or item is obsolete and needs to be upgraded.

WARD # _____

ITEM	# on ward	max # ward could hold	max # currently in use (capped)	# of items need repair	# of items need replacement (use a * to indicate need for item upgrade, too)
*****	*****	*****	*****	*****	*****
BEDS					
*****	*****	*****	*****	*****	*****
BED					
SIDE					
CABINET					
*****	*****	*****	*****	*****	*****
OVER					
BED					
TABLE					
*****	*****	*****	*****	*****	*****
CHAIR					
Visitr					
*****	*****	*****	*****	*****	*****
CHAIR					
Pt/EZ					
*****	*****	*****	*****	*****	*****
TV					
*****	*****	*****	*****	*****	*****
OTHER					
*****	*****	*****	*****	*****	*****

SMITH 102

APPENDIX G

WRANC FY 89 Midyear Review Documents

"REPRODUCED AT GOVERNMENT EXPENSE"

**FY 89 COMMAND OPERATING BUDGET
UNFINANCED REQUIREMENTS
(\$ in Thousands)**

RCS: CSCAB-205

SCHEDULE 1

ACTV	PRI	PROGRAM	PD CODE	BRIEF DESCRIPTION (40 SPACES MAX)	(000)
WRAM	4	8M		Equipment and Support Items	\$2,563

OBJECT CLASS - SUMMARY (\$000)

10	26
21	31 \$2,563
23	OTHER
*25	TOTAL \$2,563
*CONTR CODE	PROG ELE 847711

JUSTIFICATION:

SEE ATTACHMENT

IMPACT IF NOT FUNDED: Marginal items will continue to be used with increased frustration from medical staff and patients. Safety standards cannot be compromised; an increasing number of aged or broken items removed from usage for repair decreases our operating inventory and forces emergency purchase of items.

METHOD OF COMPUTATION:

CEEP list (see FY 89 COR Schedule 8) plus mattresses (\$70K), and beds and wheelchairs (\$110K).

Equipment and Support ItemsJustification

Equipment and support items are becoming increasingly obsolete, unrepairable, and in short supply. A major equipment replacement program of our original new facility equipment items must be accomplished thru other than the annual CEEP budget or year-end buys.

Infusion pumps are becoming increasingly unreliable and in short supply; lack of a standard model increases problems related to maintenance, training, and pump usage. Replacement and standardization requires \$325K. Replacement of mattresses for a large percentage of hospital beds requires \$70K. Purchase of new hospital beds and wheelchairs requires \$110K. Other CEEP requirements on Schedule 8, Mission equal \$1,458K.

Furniture replacement and upgrade for patient rooms, lounges, and waiting areas is reaching a critical stage. Numerous items are beyond repair; other area are an unsightly collection of items consolidated from various lounges and wards. Current high priority replacement requirements equal \$600K.

Appendix H

Application of the JOAHO Ten Step Monitoring and Evaluation Process

To a Patient Furniture Quality Assurance Program

The Joint Commission for the Accreditation of Healthcare Organizations provides the following guidance in using the ten step monitoring and evaluating process (JCAHO Document: Monitoring and Evaluating the Quality and Appropriateness of Care, undated):

1. **Assign Responsibility:** Overall responsibility for monitoring and evaluating in a given department should be assigned to its director (e.g. the head nurse). The responsibilities for the monitoring and evaluating activities (identifying indicators, collecting data, evaluating condition and taking actions) may be designated to other personnel on the ward (e.g. senior NCO, not necessarily NCOIC. Such assignment has positive implications for staff development and can be reflected in the performance rating).

2. **Delineate Scope of Care:** Ask the question, "What is done on this ward?" The answer should reflect the types of patients taken care of (gender, age, disease conditions, other activities encountered on the ward and the personnel who perform them, the environment in which the activities are conducted and the frequency in which they are conducted).

3. **Identify Important Aspects of (Care):** Which of the monitoring and evaluating aspects of patient furniture are the most important. The aspects chosen should be those that will have the greatest impact on the ward operation and patient care and will use the surveyor's time most effectively. Look at the high volume, high risk or problem-prone aspects of furniture management.

4. **Identify Indicators:** Indicators for each important aspect of furniture management should be identified. Indicators are measureable variables related to the structure, process or outcome of the system.

5. **Establish Thresholds for Evaluation:** The indicators direct attention to those areas in which a problem or other opportunity to improve the system may be found. As the indicators are monitored and evaluated over a period of time, note can be made that there is a problem that needs action taken when the thresholds have been met.

6. **Collect and Analyze Data:** For each indicator, determine data source, data collection method, frequency of collection and process for comparing cumulative data with the threshold for evaluation.

7. **Evaluate System:** Evaluation of the system to determine if there is a problem at the point when the data reaches the evaluation threshold. Best use of staff time for the evaluation process can be made through appropriate definition of indicators and thresholds.

8. **Take Action to Solve Identified Problems:** System evaluation may indicate that action needs to be taken to avoid the development of a problem. At any rate, action taken must identify what is expected to change, who is responsible for implementing the change. Recommendations are forwarded out of the department for those actions that are outside the department's authority.

9. **Assess the Actions and Document Improvement:** This assessment can be made through continuous monitoring and evaluation of the system even though there appears to be no problem. (Monitoring the status of patient furniture may be on a different, less frequent schedule than monitoring medical furniture such as a patient exam table);

10. **Communicate Relevant Information to the Organizationwide Quality Assurance Program:** It is imperative that monitoring and evaluation information be communicated to the necessary individuals and departments throughout the organization. Integrating quality assurance information contributes to the detection of trends, performance patterns, or potential problems that affect more than one department of service.

Unit 1 Ten Step Monitoring and Evaluation Process
Utilization Management - Patient Furniture

1. **Responsibility:** Head Nurse: MAJ Smith
Designee: CPT Jenkins, SSG Walls
2. **Scope of Care:** Same as for PCA component of unit level QA Plan.
3. **Important Aspects of (Equipment) Furniture Management:**
 - a. safe and functional utilization for patients and staff;
 - b. available in adequate numbers so that patients are not inconvenienced and personnel time is not wasted and admissions are not limited;
 - c. clean and well maintained physical appearance
4. **Indicators:**
 - a. All furniture on the ward will be fully operational and comfortable to use. No broken or unsafe furniture will be tagged and stored on the ward. (Numbers of tagged, nonfunctional pieces of furniture on the ward; numbers of unusual occurrences as a result of defective furniture);
 - b. Each patient care area has the designated numbers of pieces of equipment indicated in the (data base, approved stock list, etc.) (No deficits in the ward list of furnishings)
 - c. All furniture frames and fillers are clean. No tears in upholstery. Appearance is esthetically pleasing.
5. **Thresholds for Evaluation:**
 - a. One or more unusual occurrences generated because of deficient furniture; one or more unuseable pieces of furniture for more than 5 weekdays.
 - b. One or more delays in patient admission to the ward or accomplishment of treatment/procedure because of a lack of necessary furniture;
 - c. One or more patient complaints or comments on appearance or comfort of furniture; one or more suggestions from staff or other personnel, One or more outstanding work orders for repair or cleaning of equipment longer than 30 days. Eighteen months within expiration of estimated useful life

6. Data Collection:

Data Source

- a. Unusual Occurrence reports, work order request log
- b. 24 Hour Nursing Report; Unusual Occurrence Report; Documented reports of incidence
- c. Patient /staff complaints; work order log; Useful life data base

Sample Size

- a. 100%
- b. 100%
- c. 100%

Frequency

- a. daily; weekly
- b. daily
- c. monthly; annually (ULDB)

Data Collectors

- a. MAJ Smith; Charge nurses and Shift leaders; LOG Tech, Wardmaster
- b. Charge Nurses and Shift leaders
- c. Charge Nurses, shift leaders, Log Tech, Wardmaster

7. Evaluation

8. Corrective Actions:

Immediate repair, removal from the user area, investigate work order completion delay, initiate planning action for replacement of individual or multiple items, initiate appropriate replacement paperwork.

9. Follow-UP: Set dates for periodic reporting on corrective actions.

10. Communication: Keep Department QA Committee and/or MEDCASE/CEEP Committee and/or Department Executive Committee informed of actions and resolutions whether problems are involved or not.

Use of a Quarterly Reporting Form Can Highlight the Critical Indicators in each of the management components of the QA Program for consolidated reporting through the facility's QA channels.

QUARTERLY QUALITY ASSURANCE REPORT

Monitoring and Evaluating Activities		Trends	Conclusions, Action, Evaluation
Component	Issue/Critical Indictr		
*****	*****	*****	*****
A. PCA			
B. RM			
C. UM			
D. PM			
E. Other			
*****	*****	*****	*****

***** (Form
 adapted from draft
 WRAMC Department of
 Nursing QA Program,
 1989)

APPENDIX I

Standard Equipment List

Patient Room Equipment Lists

Department of the Army
Medical Design Guide
October 1987

Department of the Army

SMITH III

Volume 3

Medical Design Guide

"REPRODUCED AT GOVERNMENT EXPENSE"

Office of the Surgeon General
Health Facility Planning Agency

Office of the Chief of Engineers
Medical Facilities Design Office

Matrix Data

SMITH 112

3.04.01
One Bedroom

ARCHITECTURAL/ACOUSTICS

Square Foot Area Net	-	(1) Bedroom - 180 (2) Toilet - 60
Finishes - Walls	-	(1) GW (2) GW-SG
- Base	-	(1) R (2) CT
- Floor	-	(1) VCT (2) CT
- Ceiling	-	(1) ACT (2) GW
Ceiling Ht	-	(1) 8'-0" (2) 8'-0"
Door Size & Type	-	(1) 48A (2) 36A
Hardware Set	-	(1) H10 (2) H13
Ambient Noise Level	-	(1) NC30-35 (2) NC35-40
Speech Privacy Level	-	(1) Normal (2) Normal
Architectural Notes	-	(1) 4,25 ref. pp. 5-6

ELECTRICAL

Ambient Illum (FC)	-	(1) 10 (2) 20
Task Illum (FC)	-	(1) Exam-100, Reading-30
Luminaire Type	-	(1) A2,B2,J1,K,P3 (2) R1
Switching	-	(1) Multi-Sw & Std by Area (2) Std
Electrical Notes	-	(1) 12,13,14,15,16,38 ref. pp. 20-2

MECHANICAL

Total Air Changes	-	(1) 4 (2) 10
Outside Air Changes	-	(1) 1 (2) 0
Room Pressure(%)	-	(1) 0 (2) -100
Temperature (F)	-	(1) Sum 78 Win 70 (2) Sum - Win -
Relative Hum(%)	-	(1) 30-60 (2) -
Exhaust Air	-	(1) No (2) Yes
Return Air	-	(1) Yes (2) No
Filtration(%)	-	(1) 25,80,0 (2) -
Mechanical Notes	-	(2) 6 ref. pp. 13-15

MECHANICAL PIPING

Cold Water	-	Yes	
Hot Water	-	Yes	
Treated Water	-	No	
Chilled Water	-	No	M5542E - 1
Waste/Vent	-	Yes	
Floor Drain	-	No	
Steam	-	No	
Condensate	-	No	
Piping Notes	-	(1) 5 ref. pp. 16	

EQUIPMENT PROGRAM

J.S.N. Code	Nomenclature	Qty
CC023	Wardrobe, Single	1
CC037	Apron Frame 22" D x 36" L	1
CT030	Counter Top - P.L.	1
F6010	Bumper, Hospital Bed	1
M1970	Nurse Server	1
M3620	Dispenser, Paper Towel	1
M4600C	Grab Bar, Toilet-36"x48"	1
M4600M	Grab Bar, Staircase	1
M5300A	Mirror 24 X 30	1
M5542E	Patient SVC Console - M/S	1
M5960	Coat Hook	1
M6880	Shower Curtain & Rod	1
M6900	Soap Dish w/ Grab Bar	1
M7965	Drabery Track	1
M7970	Toilet Paper Holder, Recessed	1
M7980	Towel Bar, 18"	1
P3070	Lavatory, Counter	1
P5100C	Shower 3'-6" X 5'	1
P9050	Water Closet	1
M2825	Bracket, Tv	1
F0214	Cabinet, Bedside	1
F0252	Chair, Visitor	1
F0296	Chair, Patient, Posture	1
F4011	Waste Receptacle, C4	1
MC355	Table, Overbed	1
MC375	Bed, Hosp., Electric	1
M8810	Television, Bedside	1

"REPRODUCED AT GOVERNMENT EXPENSE"

COMMUNICATION PROGRAM

Commo Code	Nomenclature	Qty
NC001	Single Patient Station	1
NC0DL	Dome Light - 3 Lamp	1
NC0ES	Pullcord Station-WP, Shower	1
NC0ET	Pullcord Station, Emer	1
TLOOH	Service Console Outlet-54" AFF	1
TS00W	Wall Outlet-36" AFF	1
TVOOB	Wall Outlet, Bedside-48" AFF	1

Communication Notes - 17
ref. pp. 29-30

Matrix Data

SMITH 113

3.04.02

Two Bedroom

ARCHITECTURAL/ACOUSTICS

Square Foot Area Net	--	(1) Bedroom - 220	
		(2) Toilet - 50	
Finishes - Walls	--	(1) GW (2) GW-SG	
- Base	--	(1) R (2) C	
- Floor	--	(1) VCT (2) CT	
- Ceiling	--	(1) AC (2) GW	
Ceiling ht	--	(1) 8'-0"	
		(2) 8'-0"	
Door Size & Type	--	(1) 48A (2) 36A	
Hardware Set	--	(1) H10 (2) H13	
Ambient Noise Level	--	(1) NC30-35 (2) NC35-40	
Speech Privacy Level	--	(1) Normal (2) Normal	
Architectural Notes	--	(1) 7.25	
		ref. pp. 5-6	

ELECTRICAL

Ambient Illum (FC)	--	(1) 10 (2) 20	
Task Illum (FC)	--	(1) Reading-30	
Luminaire Type	--	(1) B2, J1, K, P3	
		(2) R1	
Switching	--	(1) Multi-Sw & Std by Area	
		(2) Std	
Electrical Notes	--	(1) 12, 14, 15, 16, 38	
		ref. pp. 20-23	

MECHANICAL

Total Air Changes	--	(1) 4 (2) 10	
Outside Air Changes	--	(1) 1 (2) 0	
Room Pressure(%)	--	(1) 0 (2) -100	
Temperature (F)	--	(1) Sum 78 Win 70	
		(2) Sum - Win -	
Relative Hum(%)	--	(1) 30-60	
		(2) -	
Exhaust Air	--	(1) No (2) Yes	
Return Air	--	(1) Yes (2) No	
Filtration(%)	--	(1) 25,80,0 (2) -	
Mechanical Notes	--	(2) 6	
		ref. pp. 13-15	

MECHANICAL PIPING

Cold Water	--	Yes	
Hot Water	--	Yes	
Treated Water	--	No	
Chilled Water	--	No	
Waste/Vent	--	Yes	
Floor Drain	--	No	
Steam	--	No	
Condensate	--	No	
Piping Notes	--	(1) 5	
		ref. pp. 16	

EQUIPMENT PROGRAM

J.S.N. Code	Nomenclature	Qty
CC023	Wardrobe, Single	2
CC037	Aeron Frame 22" x 36" L	1
CT030	Counter Top - P.L.	1
F3010	Bumper, Hospital Bed	2
M1970	Nurse Server	2
M3620	Dispenser, Paper Towel	1
M460CH	Grab Bar, Shower	1
M460CM	Grab Bar, Straddle	1
M5300A	Mirror 24 X 30	1
M5542F	Patient SVC Console - M/S	1
M5960	Coat Hook	1
M6380	Shower Curtain & Rod	1
M6900	Sock Dish w/ Grab Bar	1
M7960	Track & Curtain, Cubicle	2
M7965	Drapery Track	1
M7970	Toilet Paper Holder, Recessed	1
M7980	Towel Bar, 18"	1
P3070	Lavatory, Counter	1
P5100A	Shower 3'-6"x3'	1
P9050	Water Closet	1
M8825	Bracket, TV	2
F0214	Cabinet, Bedside	2
F0252	Chair, Visitor	2
F0296	Chair, Patient, Posture	2
F4011	Waste Receptacle, Off	1
MC355	Table, Overbed	2
MC375	Bed, Hosp., Electric	2
M8810	Television, Bedside	2

"REPRODUCED AT GOVERNMENT EXPENSE"

COMMUNICATION PROGRAM

Commo Code	Nomenclature	Qty
NCO02	Dual Patient Station	1
NCODL	Dome Light - 3 Lamp	1
NCOES	Pullcord Station-WP, Shower	1
NCOET	Pullcord Station, Emer	1
TLOOH	Service Console Outlet-54" AFF	2
TS00W	Wall Outlet-36" AFF	1
TV00B	Wall Outlet, Bedside-48" AFF	2

Communication Notes - 17
ref. pp. 29-30

Matrix Data

SMITH 114

3.04.03 A

Four Bedroom

ARCHITECTURAL/ACOUSTICS

Square Foot Area Net	-	(1) Bedroom - 440	
		(2) Toilet - 60	
Finishes - Walls	-	(1) GW (2) GW-SG	
- Base	-	(1) R (2) CT	
- Floor	-	(1) VCT (2) CT	
- Ceiling	-	(1) ACT (2) GW	
Ceiling Ht	-	(1) 8'-0"	
		(2) 8'-0"	
Door Size & Type	-	(1) 48A (2) 36A	
Hardware Set	-	(1) H10 (2) H13	
Ambient Noise Level	-	(1) NC30-35 (2) NC35-40	
Speech Privacy Level	-	(1) Normal (2) Normal	
Architectural Notes	-	(1) 8.25	
		ref. pp. 5-6	

ELECTRICAL

Ambient Illum (FC)	-	(1) 10 (2) 20	
Task Illum (FC)	-	(1) Reading-30	
Luminaire Type	-	(1) B2, J2, K, P3, R2	
		(2) R1	
Switching	-	(1) Multi-Sw & Std by Area	
		(2) Std	
Electrical Notes	-	(1) 12, 14, 15, 16, 38	
		ref. pp. 20-23	

MECHANICAL

Total Air Changes	-	(1) 4 (2) 10	
Outside Air Changes	-	(1) 1 (2) 0	
Room Pressure(%)	-	(1) 0 (2) -100	
Temperature (F)	-	(1) Sum 78 Win 70	
		(2) Sum - Win -	
Relative Hum(%)	-	(1) 30-60	
		(2) -	
Exhaust Air	-	(1) No (2) Yes	
Return Air	-	(1) Yes (2) No	
Filtration(%)	-	(1) 25, 80, 0 (2) -	
Mechanical Notes	-	(2) 6	
		ref. pp. 13-15	

MECHANICAL PIPING

Cold Water -	-	Yes	
Hot Water	-	Yes	
Treated Water	-	No	
Chilled Water	-	No	M5542F - 2
Waste/Vent	-	Yes	
Floor Drain	-	No	
Steam	-	No	
Condensate	-	No	
Piping Notes	-	(1) 5	
		ref. pp. 16	

EQUIPMENT PROGRAM

U.S.N. Code	Nomenclature	Qty
C0023	Wardrobe, Single	4
C0039	Apron Frame 22" D x 48" L	2
C7030	Counter Top - P.L.	2
F6010	Bumper, Hospital Bed	4
M1970	Nurse Server	4
M3620	Dispenser, Paper Towel	1
M4600H	Grab Bar, Shower	1
M4600M	Grab Bar, Straddle	1
M5300A	Mirror 24 X 30	2
M5542F	Patient SVC Console - M/S	2
M5960	Coat Hook	1
M5880	Shower Curtain and Rod	1
M6900	Soap Dish w/ Grab Bar	1
M7960	Track & Curtain, Cubicle	4
M7965	Drapery Track	1
M7970	Toilet Paper Holder, Recessed	1
M7980	Towel Bar, 18"	1
P3070	Lavatory, Counter	2
P5100D	Shower 4'-0" X 3'-6"	1
P9050	Water Closet	1
M8825	Bracket, Tv	4
F0214	Cabinet, Bedside	4
F0252	Chair, Visitor	4
F0296	Chair, Patient, Posture	4
F4011	Waste Receptacle, Off	2
M0355	Table, Overbed	1
M0375	Bed, Hosp., Electric	1
M8810	Television, Bedside	4

"REPRODUCED AT GOVERNMENT EXPENSE"

COMMUNICATION PROGRAM

Commo Code	Nomenclature	
NC002	Dual Patient Station	2
NC00L	Dome Light - 3 Lamp	1
NC0ES	Pullcord Station-WP, Shower	1
NC0ET	Pullcord Station, Emer	1
TL00H	Servic Console Outlet-54" AFF	4
TS00W	Wall Outlet-36" AFF	1
TV00B	Wall Outlet, Bedside-48" AFF	4

Communication Notes - 17
ref. pp. 29-30

Bibliography

Books and Pamphlets

- American Hospital Association. Estimated Useful Lives of Depreciable Hospital Assets. 1978 Edition. Chicago.
- American Hospital Association. Medical Equipment Management in Hospitals. American Society for Hospital Engineering. Chicago. 1978.
- Berman, Howard J., Lewis E. Weeks, and Steven F. Kukla. The Financial Management of Hospitals. Health Administration Press. Ann Arbor. 1986.
- Carver, Donald C. Planning for Hospital Expansion and Remodeling. Springfield: Chas. C. Thomas. 1968.
- Crosby, Philip B. Quality without Tears. Plume. New York. 1984.
- Donabedian, Avedis. Explorations in Quality Assessment and Monitoring. Volume I. The Definition of Quality and Approaches to its Assessment. Health Administration Press. Ann Arbor. 1980.
- Ellerbe Becket. Interior Master Plan Study. Phase One - Programming. Walter Reed Army Medical Center - Building 2. Mar. 1989.
- Emory, C. William. Business Research Methods. Irwin. Homewood, Ill. 1985.
- Esmond, Truman H. Jr. Budgeting Procedures for Hospitals. American Hospital Association. Chicago; 1982.
- Joint Commission on Accreditation of Healthcare Organizations. 1989 Accreditation Manual for Hospitals. Chicago. iii.
- National Academy of Sciences. Costs of Health Care Facilities. Report of a Conference by the National Academy of Engineering. Washington, D. C. 1968.
- Neumann, Bruce R., James D. Suver, and William N. Zolman. Financial Management: Concepts and Applications for Health Care Providers. National Health Publishing. Owings Mills. 1984.
- Scherkenbach, William W. The Deming Route to Quality and Productivity, Road Maps and Roadblocks. CEEP Press. Washington. 1988.

Articles and Periodicals

- 'Alternative Financing Sources.' Health Technology. (1) Sept/Oct. 1987. 206-211.
- Atkinson, Stanley M. 'Leasing Equipment Versus Buying--A Healthcare Problem.' Hospital Topics. Sept.- Oct. 1986: 10-14.

- Bergun, J. Armand. 'The Use of Design: I. Controlling costs and Maintaining Quality.' World Hospitals. 21 Nov. 1985. 52-55.
- Blake, Carter, and Garry A. Moody. 'Analyzing product's value helps maintain quality , lowers cost.' Texas Hospitals. Mar. 1986: 9-11.
- Bockow, Lester D. 'Applying Value Analysis Techniques.' Hospitals Materials Managment. Sept. 1986: 14-16.
- Bockow, Lester D. 'Equipment Acquisition Decisions. Life Cycle Cost Analysis.' Hospital Topics. Jan.-Feb. 1986: 14-19.
- Brightbill, Timothy C. 'Instruments: Competition but no lower prices.' Hospitals Material Management. Jan. 1988: 3-7.
- Budahn, P.J. 'Medical Facilities to get extra funds for staff, fix-ups.' Army Times. 14 Nov. 89 .
- Chae, Young M., James D. Suver and David Chan. 'Goal Programming as a Capital Investment Tool for Teaching Hospitals.' HCM Review. Winter 1985. 27-35.
- Cleverly, William O. 'Strategic Financial Planning: A Balance Sheet Perspective.' Hospital and Health Services Administration. Feb. 1987: 1-20.
- Decker, Dr. Russell, J.D. 'Protection against Obsolescence.' Hospitals Materials Management. May. 1986: 23.
- Dillman, David E. and Martin Holzman. 'Medical Equipment Purchasing: How can it be made Efficient and Economical?' Hospital Materials Management. May. 1986: 3-7.
- Enger, Elaine L., Jill Mason and Karyn Holm. 'The Product Evaluation Process: Making an Objective Decision.' Dimensions of Critical Care Medicine. 6 (1987): 350-356.
- 'Equipment Acquisition: Evaluating the prospects for Manufacturer Support.' Health Technology. (2) Mar/Apr 1988. 72-76.
- Forgionne, Guiseppe A. 'Effective Resource Allocation through Decision Support Systems.' Journal of Systems Management. Dec. 1986. 26-31.
- George, LTC Harvey W. 'Integrating Capital Equipment Management.' Journal of Healthcare Materiel Management. Nov. - Dec. 1987: 30-33.
- Goodman, Gerald. 'The growing importance of equipment planring.' Hospitals. 1 Nov. 1984: 100-101.
- Graham, Judith. 'Cost controls, long-term plans to gain roles in capital spending.' Modern Healthcare. 2 Jan. 1987: 52-54.

- Gray, William J. 'Capital Financing Techniques for Health Care Facilities: A Historical Overview.' Health Care Strategic Management. Mar. 1984: 4-8.
- Green, Dennis L. 'Financial Modeling for Hospital Materials Managers. Part I.' Hospital Materials Management. Sept. 1986: 7-9.
- Green, Dennis L. 'Financial Modeling for Hospital Material Managers. Part II.' Hospitals Materials Management. Oct. 1986: 17-20.
- Green, Dennis L. 'Financial Modeling for Hospitals Materials Managers.' Hospital Materials Management. Dec. 1986: 9-13.
- Gregory, Mary M. 'Surgical Lights. Making a Purchase Decision.' AORN Journal. 46 (1987): 904-918.
- Groth, C. Daniel. 'How do you Raise Money for a New Venture?' MGM. Mar.-Apr. 1987: 31-35.
- Hall, B.J. 'Auditing the Hospital's Property, Plant and Equipment.' Auditing the Modern Hospital. Englewood Cliffs: Prentice-Hall. 1977. 123-130.
- Hanson, Ellis G. 'Preconstruction planning : a frame for development.' Hospitals. 1 Nov. 1984. 97-98.
- Harju, Mark. 'Who's responsible for hospital equipment and product purchasing decisions?' Hospitals. 1 Jul. 1984: 70-71.
- Harris, John P., and Jeannette B. Price. 'Finding funds under your nose with capital raising techniques.' Healthcare Financial Management. Jul. 1988: 25-29.
- Hicks, Lanis L., Kenneth D. Bopp, and Richard Speck. 'Forecasting Demand for Hospital Services in an Unstable Environment.' Nursing Economics. Nov.-Dec. 1987: 304-316.
- Hoffman, Frances M. 'The Capital Budget. Developing a Capital Expenditure Proposal.' AORN Journal. 44 (1986): 604-610.
- Hogan, Andrew J. 'Capital Expenditure Planning: The Value of Information to Hospitals.' Hospital and Health Services Administration. Feb. 1987: 19-37.
- Holmgren, John H. 'Purchasing Approaches: Linens and Monitoring Equipment.' Purchasing for the Health Care Facility. Publ. Charles C. Thomas. Springfield. 1975. 89-107.
- Holthaus, David. 'Innovative Financing marks Construction.' Hospitals. 5 Oct. 1987: 114-115.
- Johnson, Mariann L. 'Equipment Planning Process. Organizing Purchases.' AORN Journal. 47 (1988): 214-220.

Johnston, Oswald. 'Delivering the Goods in Services.' The Washington Post. 26 Feb. 1989:A2.

Junikiewicz, James J. 'Involved in a Construction Project? These Suggestions May Help.' Hospital Materials Management Apr. 1986. 3-7.

Kerzner, Harold. 'In Search of Excellence in Project Management.' Journal of Systems Management. Feb. 1987. 20-27.

Kimball, Elizabeth. 'Interior Design as healing agent.' Canadian Medical Association Journal. 15 May 1984:1364-1372.

Klein, COL Thomas. 'Pay Cited as Factor in Keeping Physicians.' by John E. Burick. Strips. 31 Mar. 1989: 5.

Kubal, Joseph D. 'Department Heads exert more buying influence.' Health Facilities Management. Sep. 1988. 42,44,45.

Lackman, Michael. 'Controlling the Project Development Cycle. Part 1 - Guidelines for a Project Manager.' Journal of Systems Management. Feb. 1987.

Lackman, Michael. 'Controlling the Project Development Cycle. Part 3 - Tools for Successful Project Management.' Journal of Systems Management. Feb. 1987.

Lewis, Edith P. 'The more things Change.' American Journal of Nursing. Feb. 1985: 220.

Machalaba, Daniel. 'On Track. Transit Manager Shows New York Subway isn't beyond Redemption.' Wall Street Journal. 14 Oct. 1988: A1.

Martin, Merle P. and James E. Trumbly. 'A Project Accountability Chart (PAC).' Journal of Systems Management. Mar. 1987: 6-9.

Mallison, George F. 'Staffing, materials management provide cost-cutting potential.' Hospitals. 16 Oct. 1982: 57-58.

Monczka, Robert M. and Barbara E. Taylor. 'Cost and Value Management.' Hospitals Materials Management. Jan. 1987: 8-11.

Monczka, Robert M. and Barbara E. Taylor. 'Cost Mangement Techniques.' Feb. Hospitals Materials Management. 1987: 12-16.

Monserud, Susan D., 'Programme planning and facility design.' World Hospitals. Nov. 1985:69-70.

'New Technologies for your Hospital to consider.' Health Technology. (1) Jul/Aug 1987. 138-148.

- Oszustowicz, Richard J., and Janice L. Dreachslin. "Capital Financing in Prospective Payment." Health Care Strategic Management. Mar. 1984: 9-13.
- "Payment for Using New Technologies." Health Technology. (2). Mar/Apr 1988. 54-60.
- Reed, Thomas W., "Financing in the 1980's." Interview in Health Care Strategic Management. Mar. 1984: 26-30.
- Reid, Richard A. "The Forecasting Process: Guidelines for the MIS Manager." Journal of Systems Management. Nov. 1986. 33-37.
- "Replacing Unsafe or Aging Equipment." Health Technology. (1). Mar/Apr, 1987. 46-53.
- Rice, James A. and Pamela M. Garside. "The Missing Links Between Planning and Budgeting." Health Care Strategic Management. Mar. 1984 : 14-20.
- Riffer, Joyce. "Purchasing decisions demand hospitalwide strategies." Hospitals. 1 Jul. 1984: 72-74.
- Russel, George B. "How CEOs can save hard cash on materials management." Health Care. Oct. 1987: 11, 28-31.
- Siegner, Catherine A. "Shared Service Groups, alliances offer plans to trim capital budgets." Modern Healthcare. 11 Oct. 1985: 85-86.
- Skrzycki, Cindy. "Baldrige Award: Hard work for High Honors. As Quality Issue Heats Up, So does Competition for Prize Honoring It." The Washington Post. 18 Apr. 1989: D1,D6.
- Sprague, Joseph G. "The Use of Design:II Controlling Costs and Maintaining Quality." World Hospitals. Nov. 1985: 56-59.
- Strickland, Jack O. "Key Ingredients to Total Quality Management." Defense 89. Mar.-Apr. 1989. 17-21.
- Suver, James D., Bruce R. Neumann. "Capital Investment Decisions and Relevant Costs." Management Accounting for Healthcare Organizations. Chicago:Pluribus Press. 1986. 368-382.
- Theerman, Barbara White, Judy A. Drewes, and Vicki Vollmer. "Important Considerations in Interior Design." Contemporary LTC. May, 1986: 33-34.
- Thorpe, Darrell P. "Capital Financing for Hospitals." Editorial. Healthcare Strategic Management. Mar. 1984: 32-33.
- Walsh, Valerie. "When wishing won't make it so." American Journal of Nursing. Mar. 198 : 318-320.
- Wasserman, Jeffrey. "Lessons from New Jersey." Hospitals. 1 Dec. 1983: 76-78.

Wilkinson, Richard. 'CEOs neglect materials cost cutting: survey.' Hospitals. 20 Jan. 1987: 100-103.

Wilkinson, Richard. 'Preparing for Capitation: Don't bypass purchasing.' Hospitals. 20 Mar. 1987: 106-107.

Willis, Grant. 'Veterans left confused, bitter by VA hospital cuts.' Army Times. 12 Jun. 1989. 20.

Wilson, George C. 'Tower involved in Pentagon Planning. Aides say nominee working on budget cuts, strategic assessments.' The Washington Post. 1 March 1989. A3.

Yip, Yu Lap. 'From buying beds to upgrading an old rural hospital.' British Medical Journal. 293 (1986): 1663-1665.

Zaccarelli, Herman E. 'New Formula for purchasing Capital Equipment.' Nursing Homes. Jan.-Feb. 1986: 6-9.

Government Publications

Department of the Army. AR 37-100-89. The Army Management Structure. 1 Mar. 1988. 23-24.

Department of the Army. Headquarters, Walter Reed Army Medical Center. Product Assurance. Product Review Committee. WRAMC Reg. No. 702-1. Washington, D.C. 28 JAN 1989.

Department of the Army. Directorate of Logistics, Walter Reed Army Medical Center. WRAMC Logistics Bulletin. 1-89. Washington, D. C.

Department of the Army. Office of the Surgeon General Health Facility Planning Agency. Office of the Chief of Engineers Medical Facilities Design Office. Medical Design Guide. Volume 3. Oct. 1987.

Department of the Army Office of the Surgeon General Health Facility Planning
Agency Project Management Branch. Health Facility Project Officer
Management Guide. OCT. 1976. Washington, D. C.

Headquarters, Department of the Army. 'Inventory Management. Supply Policy
below the Wholesale Level.' Army Regulation 710-2. 24 Jan 1987.

United States of America. Department of the Army Health Services Command.
'Automated Data Systems Manual AMEDDPAS USERS MANUAL.' Ft. Sam Houston,
Texas. 1 Oct. 1984.

United States of America. Department of the Army Health Services Command.
Circular 700-1. 'Capital Equipment Programs.' Ft. Sam Houston, Texas.
10 June 1987.

United States of America. Department of the Army Health Services Command
Directorate of Logistics. HSLO a1712-89-013-01 thru 04. 'Formula for
Determining Activity Proportionate Share for FY 89 OEEP Funds.

United States of America. Department of the Army. Health Services Command.
Fiscal Year 89 Reprogramming Policy. San Antonio.

United States of America. Department of the Army. Headquarters, Health
Services Command. 'Memorandum for Commanders. FY 89 Midyear Review, RCS
CSCAB-205.' San Antonio, Tx. 24 Apr. 1989.

United States of America. Department of the Army. Headquarters, Walter Reed
Army Medical Center. WRAMC Reg. 40-610. Medical Logistics. 'The Medical
Care Support Equipment Program (MEDCASE).' 1 Sep. 1983.

United States of America. Department of the Army Health Services Command
Resources Management. HSRM A1712-89-002-09 thru 18. 'Facility Unique
Supply Dollar Allocation Rates.' San Antonio. 1989.

United States of America. Department of the Army Health Services Command.
Directorate of Resources Management, Walter Reed Army Medical Center.
Directorate Information Packet. 'The Productivity capital Investment
Programs.'

United States of America. Department of the Army Health Services Command.
'1988 Strategic Plan.' Ft. Sam Houston, Texas. May: 1988.

United States Army. Organizational Effectiveness Center and School.
Organizational Surveys: Development and Application. Ft. Ord, Ca.
Mar. 1983.

Walter Reed Army Medical Center. Directorate of Resources Management.
'Standard Operating Procedure for Financial Management.'

Walter Reed Army Medical Center. Directorate of Resources Management. "FY 89 Command Operating Budget Unfinanced Requirements. Equipment and Support Items." Midyear Report.

Interviews

Becich, Raymond B. Personal Interview. National Institutes of Health Clinical Center. Bethesda, MD. 18 Nov, 1988.

Belich, MAJ Joseph. Department of Nursing. Walter Reed Army Medical Center. 15 Mar. 1989.

Chaufournier, Roger. Personal Interview. The George Washington University Hospital. Washington, D.C. , 19 Sep. 1988.

Cooper, Jodi. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 6 Sep. 1988.

Evans, MAJ. Eddie. Personal Interview. Office of the Surgeon General. Arlington, Va. 1 May 1989.

Gwaltney, LTC. Mary K. Personal Interview. Department of Nursing. Walter Reed Army Medical Center. 20 Oct. 1989.

Hastings, COL James. Comments. Commander's Morning Report. Walter Reed Army Medical Center. Washington, D.C. 1 Feb. 1989.

Johnson, COL Donald A. Personal Interview. Walter Reed Army Medical Center. 20 Oct 1988.

Kildea, LTC. John. Personal Interview. Department of Nursing. Walter Reed Army Medical Center. 18 Apr. 1989.

Maloney, Mr. John. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 1Jun 1989.

Margoleus, Alan. Telephone Interview. Executive Vice President, MARDEC INC. 16 Jan. 1989.

Marley, COL. Duke. Personal Interview. Directorate of Logistics. Walter Reed Army Medical Center. 27 Jan. 1989.

---. Personal Interview. 28 May 1989.

Mervis, MAJ. Stuart. Personal Interview. Directorate of Logistics. Walter Reed Army Medical Center. 30 Aug. 1988.

---. Personal Interview. 2 June 1989.

Moore, OPT. D. Personal Interview. Walter Reed Army Medical Center. 2 Feb. 89.

Murphy, Roger. Telephone Interview. Sheraton-Washington Hotel. 16 Jan. 1989.

Murry, LTC James. Personal Interview. Directorate of Medical Activities Administration. Walter Reed Army Medical Center. 1 Jun. 1988.

Pattillo, CPT. David. Personal Interview. Department of Surgery. Walter Reed Army Medical Center. 6 Dec. 1988.

Rehm, LTC. Adele. Directorate of Resources Management. Nurse Methods Analyst. Walter Reed Army Medical Center. 18 Apr. 1989.

Slife, CPT Leslie. Personal Interview. Directorate of Medical Activities Administration. 15 Jun 1989.

Smeltzer, LTC. P. Telephone Interview. Health Services Command. Property Management Division. Requirements Management Branch. 15 Jun 89.

Rosenblum, Victor S. Personal Interview. Sherikon, Inc. Alexandria, Va. 18 Apr. 1989.

Straughn, Pat. Telephone Interview. Hyatt Regency. Chicago. 21 Feb. 1989.

Sturgis, MAJ. Anne. Personal Interview. Directorate of Logistics. 1 Jun 1989.

Thornton, COL. Joseph. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 6 Feb. 1989.

---. Personal Interview. 31 Aug. 1988.

Tomitz-Proano, CPT Laura. Personal Interview. Directorate of Logistics, Property Management Branch. WRAMC. 21 Jun. 1989.

Van Hook, LTC. Thomas. Personal Interview. Department of Defense Health Facilities Planning Agency. Arlington, Va. 14 Mar. 1989.

Wanersdorfer, MAJ. Joseph. Personal Interview. Directorate of Resources Management. Walter Reed Army Medical Center. 12 Apr. 1989.

Walker, MAJ. Charlene. Personal Interview. Walter Reed Army Medical Center. Department of Nursing. 2 Dec. 1988.

Miscellaneous References

Brazil, Ann. Quality Assurance Class Presentation. 5 Jan. 1988. Academy of Health Sciences. San Antonio.

---. Quality Assurance Class Presentation. 21 Jan. 1988. Academy of Health Sciences. San Antonio.

- Calderwood, MAJ Philip A. After Action Report. Head Nurse Conference Results. Walter Reed Army Medical Center. Washington, D. C. 28 Nov. 1988.
- Interagency Institute for Federal Health Care Executives. Group Discussions. 13 SEP 1980. Washington, D.C.
- The Joint Commission's Agenda For Change. Class Handout. M27HEHD-06K-2 127. Health Care Administration Division. Academy of Health Sciences. San Antonio.
- Joint Commission on Accreditation of Healthcare Organizations. 'Monitoring and Evaluating the Quality and Appropriateness of Care.' Information Paper. 21 Jan. 1988.
- Kiley, Robert. 'New York is Falling Apart.' Prod. George Crile. 60 Minutes. 19 Feb. 1989.
- Nurse Methods Analyst Course. Group Discussions. AUG.15-19, 1988. Crystal City, VA.
- ReVelle, Jack B. 'Total Quality Management - TQM.' Telecast Program, The George Washington University. Washington, D.C. 4 May 1989.
- Rosenblum, Victor S. Letter to COL Henry B. Marley, Jr., Director of Logistics. 2 Mar. 1989.
- Summary of JOAHO Live Video Tape - 7 November 1987. Class Handout. Academy of Health Sciences. San Antonio. 21 Jan. 1988.